SEPTEMBER 1958

FOOD PROCESSING

'HE NEWS MAGAZINE . . .

applied technology – new food products, gredients, processing, packaging, production
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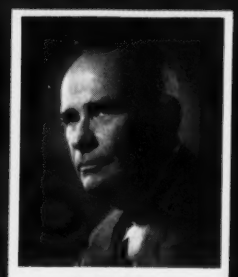
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Boyd H. Redner

Howard H. Cherry, Jr.

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Conservatism Now Risky

The time is favorable for capital expenditures

Exclusive Report—Documented views from executives of leading suppliers to the food industry . . . See Page 19

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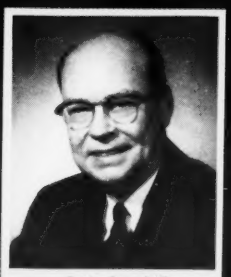
William J. Scarlett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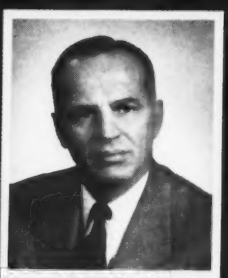
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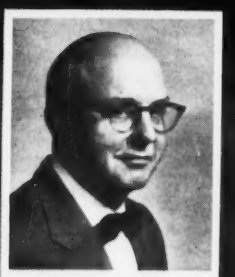
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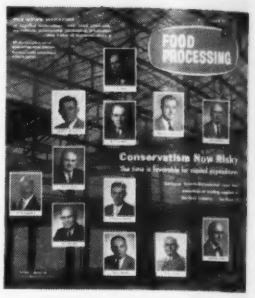
that's interesting

Construction photo on this month's cover . . .



shows one of Pillsbury Mills' new plants, constructed during 1958, when they invested more than $4½ million in plant modernization and new construction. Backing up Pillsbury's thinking, executives of leading suppliers to the food industry, pictured on the cover, present their views on "Why now is a favorable time for capital expenditures" on page 19.

Bull market for beef

We're a nation of beef eaters, according to current meat production totals for last few years. Of the more than 250 million lb of meat produced in

1957, 54 per cent was beef, 3[illegible] per cent pork, 6 per cent veal and 3 per cent lamb and mutton. Before 1953, pork usually had wide margin over beef ("Cuts and Slices," Div. of Home Economics, American Meat Institute, 59 E. Van Buren St., Chicago 5, Ill.)

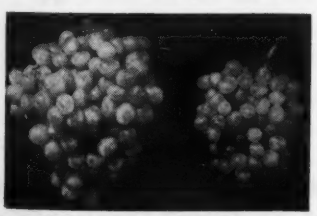
'pears to have some "applecation"

Early-stage experiments underway in Sweden are said to indicate it will soon be possible to buy apples which taste like oranges, and pears which taste like apples.

Since apples can be grown easily in temperate climates, they might be used for production of apple-based preserves with a marmalade flavor. Possible commercial applications for pears which taste like apples are less obvious, other than simply to use pears to replace apples which taste like oranges. (*Food Manufacture*, May 1958)

Profit stimulant

Coincident with the major article on gibberellins which ran in July FOOD PROCESSING ("Gardener's Novelty May Revolutionize Specifications for Foods' Raw Materials"), came news that the first Thompson seedless grapes to be commercially stimulated with gibberellins received top prices at New York City.



Grapes treated with Merck's "Gibrel," typified by full, heavy bunch at left, averaged $8.80 per 25-lb lug, as against only $5.78 average for untreated (right). Taste of treated fruit is reported as good as, or better than, the smaller untreated fruit.

FDA has indicated it will offer no objections to extremely dilute "Gibrel" sprays (5 to 50 ppm per acre) used on Thompson Seedless and Black Corinth grapes in early growing stages to increase fruit size. The agency also has indicated other allowable maximums for treating various seeds, seed potatoes, celery, tomatoes and spinach.

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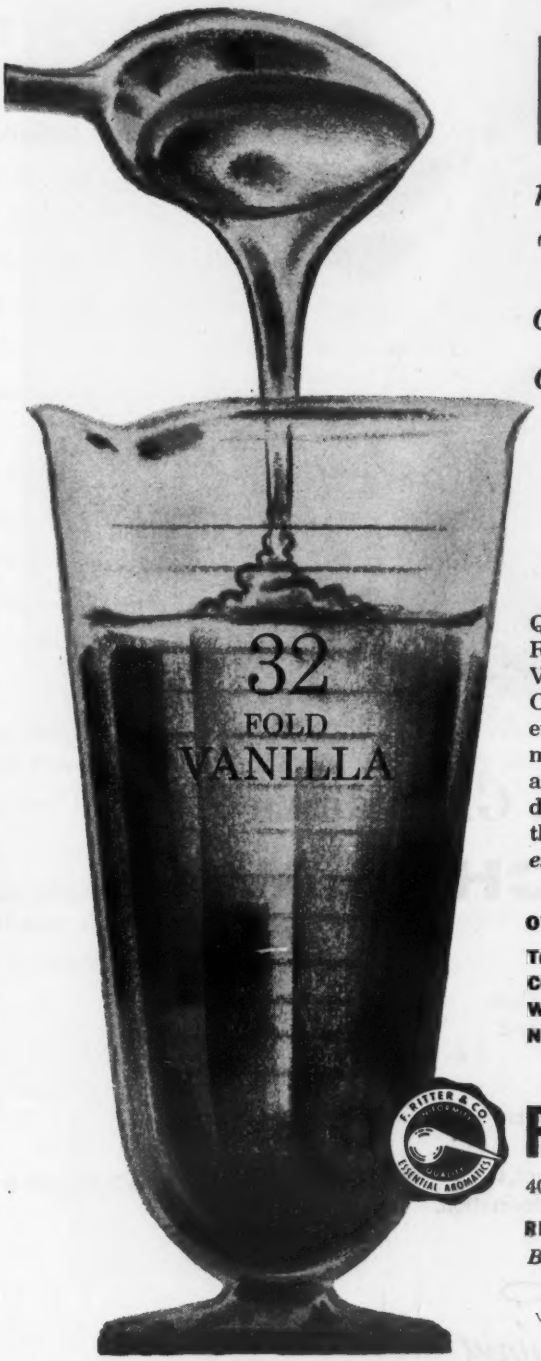

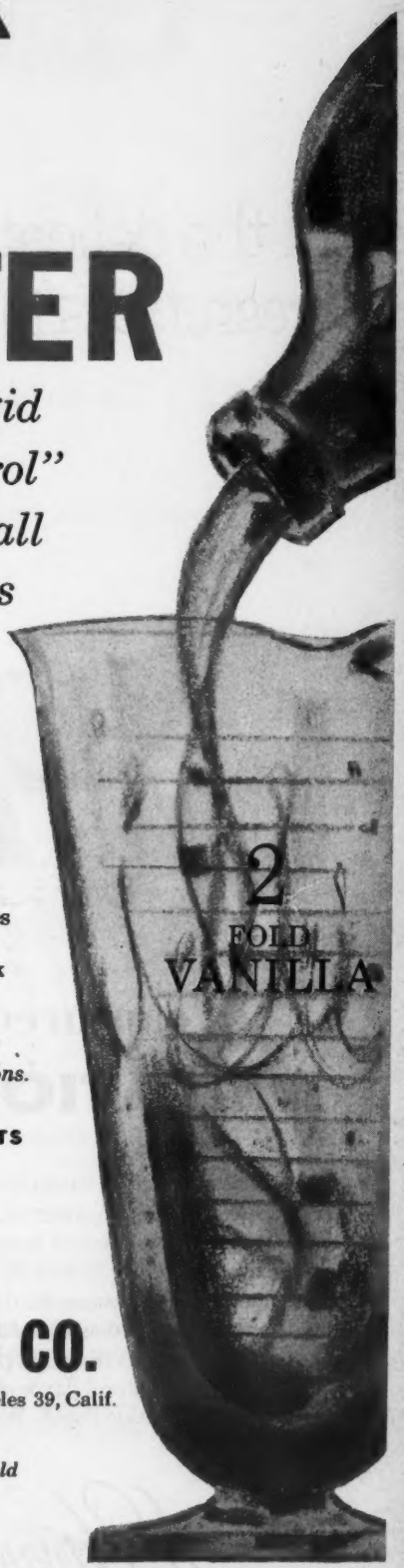

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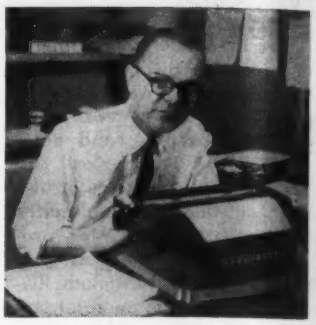

Prepare for growth in the coming boom

Within our 'Executive Forum on Capital Expenditures' (See page 19), the feeling is expressed that the coming boom will require more changes in the food industry than in most other industries.

We have come to expect that changes in other industries will mean push-button shopping, picture-frame TV, automatic maid service, etc. But food changes, coming in the future, will be more startling.

Even now, however, new products and procedures in the food field are required to meet consumer demands, with more emphasis being placed on convenience items.

"People like new ways to prepare food, and they like food in new forms.

"New products (however) can seldom exist without new equipment and new or expanded plants. . . In the food industry, there is no reason why processors and manufacturers should defer capital expenditures for new plants, or to make existing plants more efficient."

The preceding two statements were made by H. A. Bullis, Chairman of the Board of General Mills.

They are backed up by the fact that General Mills' capital expenditures for 1957-58 were about $16 million, roughly the same as in the previous year. Capital expenditure plans for 1958-59 are substantially larger than this.

It is estimated that by 1965, the nation will be spending about $100 billion annually for food. Certainly the food industry should design its future to meet this demand for growth.

Joe Doorhees

ASSOCIATE EDITOR

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FOOD PROCESSING

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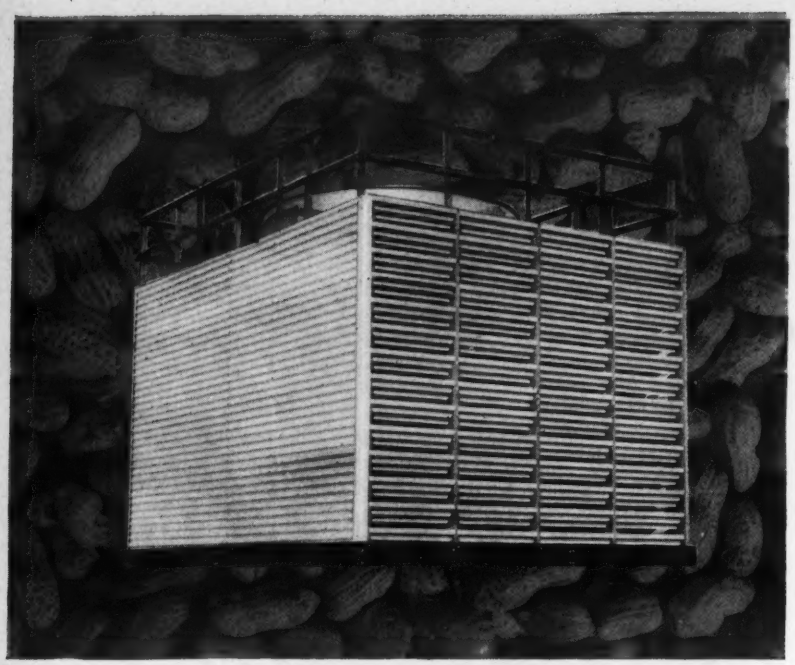

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food regulations

FOOD ADDITIVE BILL FINALLY PASSED

Calls for considering safety of an additive under condition of use

In the eleventh hour of a busy Congressional session, a long-delayed food additives bill passed both houses of Congress and was sent to the president.

The bill, detailed in last month's column, reached the House floor under a suspension of rules, and got the necessary two-thirds vote to pass. As promised, Senator Lister Hill (D. Ala.) took the baton and rushed the bill through the Senate.

A last-minute hitch developed as Rep. James J. Delaney (D., N. Y.) held out for an amendment specifically mentioning a no-tolerance level for any food additive found to be cancer-inducing.

The full committee accepted this amendment, and with deletion of the provision on referrals to an advisory committee, the bill was reported substantially in its original form.

Observers here credit much of the victory to the unprecedented cooperation of food and chemical industry groups with FDA. Next month Food Processing will interpret the details of this important new law.

Amended bill allowing label declaration exemptions passes House

The Haley Bill (H. R. 9521) to exempt fresh produce from chemical-preservative label declaration took a number of turns during the session just ended.

Introduced in the House by Rep. James Haley (D., Fla.) at the request of Florida citrus growers, the bill was reported out of the Interstate and Foreign Commerce Committee.

Opposition pressure, however, reached the all-powerful Rules Committee which refused to clear the bill for a House vote. The Rules Committee subsequently reversed itself. House passed bill with an important amendment.

Original Haley bill called for blanket exemptions on label declarations—from interstate crates to retail bins.

Amended bill requires label declaration on shipping package but not on bin placards at retail level.

FDA, which wanted label declarations at both levels, reluctantly withdrew its opposition in order to insure declaration of preservative on the interstate package.

Antioxidant can no longer be called D-isoascorbic

Antioxidant known as D-erythroascorbic acid has sometimes been designated as D-isoascorbic acid when used as ingredient in non-standard fabricated food. FDA regards this designation capable of misleading food purchasers because of similarity to the chemical name and the common name of vitamin C — ascorbic acid. Hereafter, compound must be identified on label by the name "erythorbic acid."

Each use of gibberellins requires FDA approval

With gibberellins' use increasing steadily—see feature article in Food Processing, July 1958—FDA attitude takes on increasing importance. FDA has told Food Processing that the safety of gibber-

ellins *has not* been demonstrated. On the other hand, there is no evidence that they are harmful.

Every specific use of gibberellins has to be cleared with FDA until such time as gibberellins are proven generally harmless. Extensive industry research on the subject is paving the way toward a possible future decision on over-all use.

In the meantime, gibberellins' use has FDA go-ahead in treating seed potatoes, Thompson's seedless and Black Corinth grapes, and the seeds of peas, lima beans and certain other beans.

FDA's view is that studies on these crops have shown that the gibberellins do not persist in the food when applied before the formation of the edible portions.

USDA no longer administers fishery grade standards

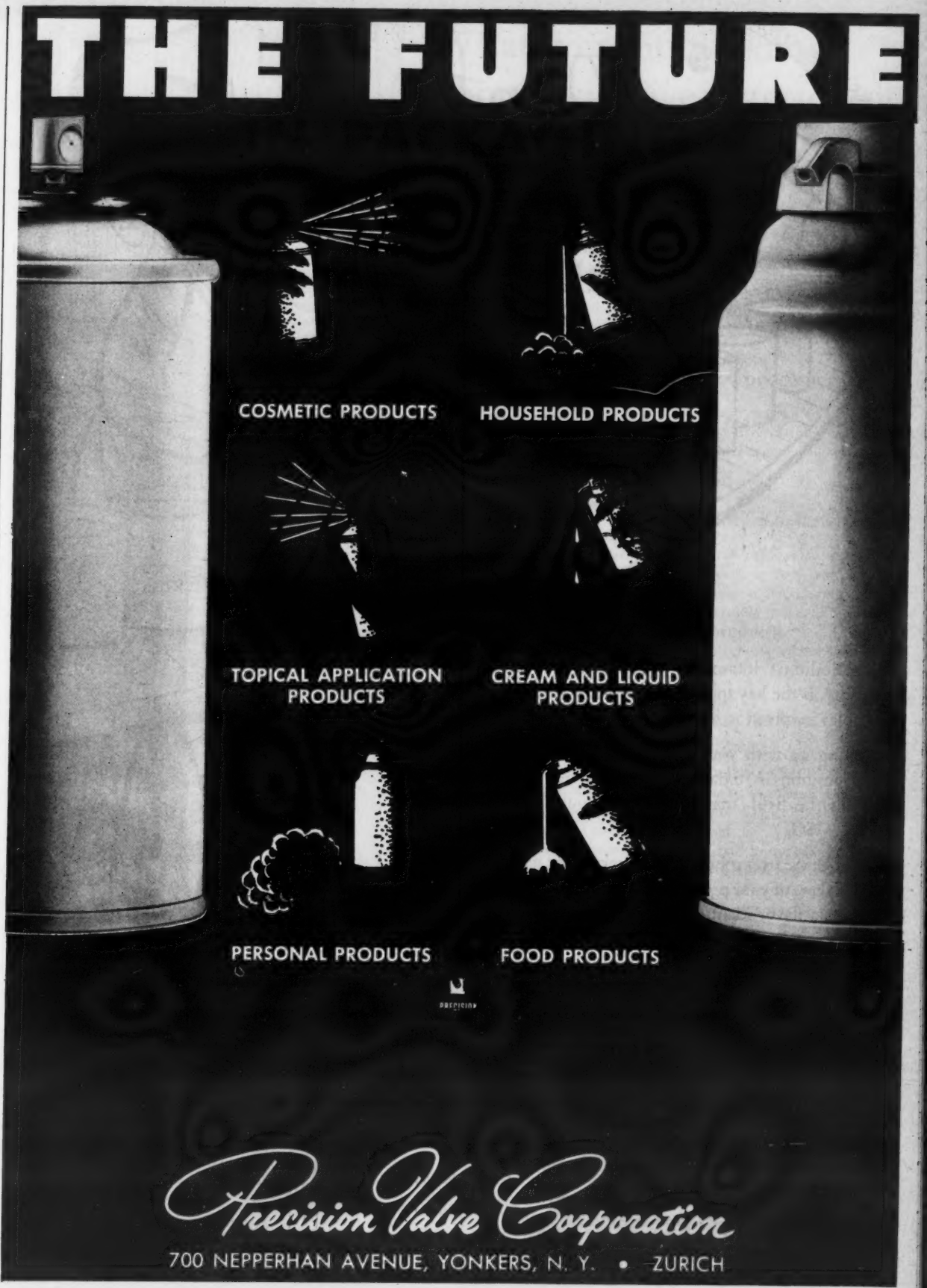
Inspection services for fishery products are now the responsibility of the Department of the Interior. Prior to this, voluntary standards of quality for processing of fish foods were developed by Interior but administered by USDA.

With this change the supervision of processing comes under the direction of the department establishing the standards.

No specific plans for "rating" protein claims

FDA told FOOD PROCESSING that it plans no specific regulations on protein claims. FDA points to the complex nature of the protein problem — which makes it almost impossible to "rate" a protein claim.

According to them, the proposed Canadian regulations (see page 32 of August FP) represent but one approach to a very complex problem. One facet presenting difficulties is that protein changes when



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(*Continued from preceding page*)

used in combination with certain other foods.

No evidence exists of inadequate protein intake by significant numbers of people in this country. Something FDA will watch for are misleading references to protein in special dietary foods.

Bread standards may be amended

Bread: In the first proposed amendment since the bread standards were promulgated in 1952, the Hercules Powder Company is asking that wheat gluten be added to the list of optional ingredients.

According to the Hercules petition, adding of wheat gluten will make a stronger dough with improved gas-retaining properties capable of yielding better finished baked products.

Example: Hamburger buns with stronger "hinged" which do not break easily when opened.

August 30 was the deadline for presentation of views and comments. Unless there are objections or public hearings are necessary, the standards will go into effect this winter.

USDA regulations on lard antioxidant labeling pose problem for FDA

Lard: A proposed USDA identity standard for "lard shortening" is posing a problem for bakers, and for the Food and Drug Administration.

The USDA standard requires that one or more of seven antioxidants be used in the product. It does not require that the antioxidant be shown on the label of the end product.

FDA, officially silent, is known to be concerned because the failure to declare the antioxidant on the label would probably put a baker in violation of the Food, Drug and Cosmetic Act.

However, until lard manufacturers declare the antioxidant on container labels there

will probably be no enforcement against bakers.

Tripartite conference of FDA, USDA and industry representatives will be held to iron out the problem.

Is 5 ppm DDT on sweet corn safe for animal feed?

National Canners Association has asked FDA to up its proposed zero tolerance for DDT residues on sweet corn forage.

NCA wants a tolerance of five parts per million on husks and cobs.

An NCA survey revealed that such a tolerance is safe when ensilage is fed to meat animals up to 60 days prior to slaughter. Also, most sweet corn ensilage is within the 5 ppm tolerance.

Problem of a usage plan for beef animals but not dairy animals to insure controlled use rests in FDA's hands.

The US Food Law up to date

New addition to the Food Law Institute Series is a comprehensive reference source. Compilation of the complete administrative and judicial record of the Federal Food, Drug, and Cosmetic Act, as amended, from January 1953 through December 1957 totals 1144 pages.

Included are all pertinent court decisions, statements of general policy and interpretations by the Food and Drug Administration for the four-year period.

Definitions, standards for foods, sample forms to follow for filing a petition and the full text of all relevant legal changes are also included.

"Federal Food, Drug, and Cosmetic Act, Judicial and Administrative Record, 1953-57" by Vincent A. Kleinfeld and Charles Wesley Dunn is available at $25 per copy from Commerce Clearing House, Inc., 4025 W. Peterson Ave., Chicago 46, Ill.

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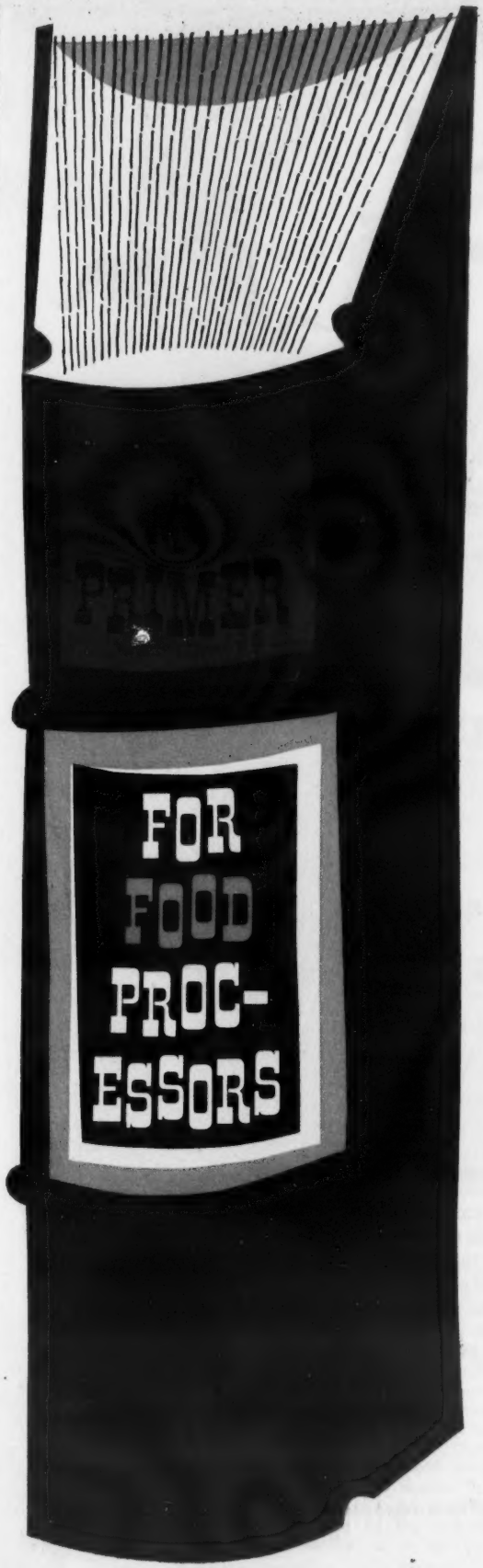


What you should know about oxidative deterioration

What is oxidative deterioration?

In fats and in foods containing fats, oxidative deterioration is caused by the reaction of oxygen in the air with the unsaturated portion of the fat molecule. This reaction produces free peroxide radicals which, in turn, appear to trigger a lengthy chain reaction, the result of which is the formation of a variety of aldehydes, ketones and acids. Once started, the breakdown cannot be reversed. In fact, if allowed to continue, it proceeds at an increasing rate.

Why is it important to food processors?

Oxidative deterioration, unless checked, rapidly takes its toll of fat-containing food products in the form of rancidity. Nothing destroys the reputation of a food product so quickly as the pungent, tallowy odor and flavor characteristic of rancidity.

How can you control oxidative deterioration?

Oxidative deterioration can be effectively controlled with antioxidants. Added to oxygen-sensitive fats and fat-containing food products, these chemical compounds step in to check the rancidity-producing chain reaction referred to above. Since the reaction leading to rancidity cannot be reversed, antioxidants can only prevent further deterioration. Hence, it is essential that they be added as early in the processing of the food product involved as possible.

Which antioxidant is best for you?

The principal food-approved antioxidants in use today are butylated hydroxyanisole (BHA), butylated hydroxytoluene (BHT), and propyl gallate. All are available from Eastman, alone or in solution formulations containing various combinations and ratios of BHA, BHT and propyl gallate, with or without a metal chelating agent.

The most effective and economical formulation for use in any given food product depends upon such factors as the food itself, how it is processed, methods of distribution and storage, and types of packaging. Advice and assistance in selecting the best formulation for your specific requirements is available from the Eastman food laboratories.

Where are these antioxidants available?

Marketed under the trade name TENOX, these food-grade antioxidants and the experienced technical service which backs up their proper use are available from Eastman Chemical Products, Inc., subsidiary of Eastman Kodak Company, Kingsport, Tennessee.

Tenox Eastman food-grade antioxidants

SALES OFFICES: Eastman Chemical Products, Inc., Kingsport, Tenn.; New York; Framingham, Mass.; Cincinnati; Cleveland; Chicago; Houston; St. Louis. West Coast: Wilson Meyer Co., San Francisco; Los Angeles; Portland; Salt Lake City; Seattle; Denver; Spokane; Phoenix. Canada: P. N. Soden Co., Ltd., Montreal, P.Q.; Toronto, Ontario.

5008 on Reader Service Slip

In every pack...

foods have the appetite appeal you want

with Clinton Products

Whatever foods you process, you can depend on ingredients from Clinton to enhance their eating qualities. For each food, there's a just-right Clinton Product—corn syrup (dry or liquid), *Clintose*® dextrose and starches—refined corn oil—lactic acid—that produces the same results every time, because:

CONSISTENT FORMULATION MAKES CLINTON PRODUCTS RELIABLE

Three analytical control laboratories and several single-purpose testing stations are located at strategic points in our plant. They check every stage in the processing of *all* products . . . they check *all* finished products to be sure specifications are met exactly. That's why you can depend on Clinton products to do the job for which they are needed.

Your Clinton salesman can help you select the right products to give your foods the qualities you want. And, should you need special production advice, *prompt* technical service is available when you need it. Call your Clinton salesman today, or write.

CLINTON CORN PROCESSING COMPANY
CLINTON, IOWA

CLINTON

... Where research today improves tomorrow's product.

5009 on Reader Service Slip

Seamless "smoothies" of rigid foil . . .

. . . combine merchandising and protection advantages of aluminum can with economies of aluminum foil. Containers have completely smooth, polished appearance and perfectly flat rim. Tapered wall allows nesting in shipment. Two basic types include unit containers in ½- to 2-oz sizes and casseroles in sizes to 12 fl oz. Foods in unit containers may be marketed either individually or in sets that are boxed, sleeved or attached to a display card (upper photo). Casseroles (lower) can be used for variety of frozen food products. Among most practical closures is a heat-sealed foil cover over a flat rim, with convenient pull tab. Protective vinyl coating can be used. Heat- and discoloration-resistant transparent or opaque lacquers in variety of colors are available. Development of Ekco-Alcoa Containers Inc., Wheeling, Ill.

PRODUCTS AND PACKAGES

PORTION PACKS

Diamond Crystal extends portion-pack line . . .

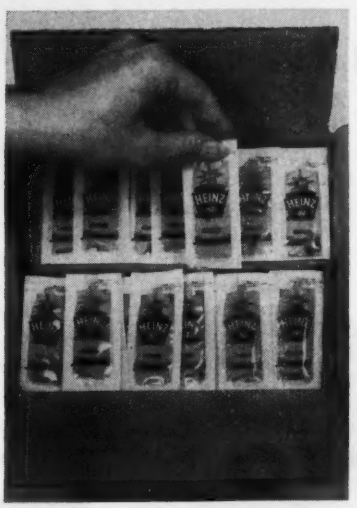
. . . to include institutional packets of ketchup, mustard, cheese, apple and grape jelly in addition to widely used salt and pepper packets. Half-oz ketchup packet is U.S. fancy grade; mustard packet weighs ¼-oz and is salad grade; cheese packet contains five grams of grated Parmesan cheese; half-oz packets of jelly are pure — without added preservative. Company also has introduced three cellophane-wrapped meal service kits for restaurants, drive-ins and locations where food must be carried out. Diamond Crystal Salt Company is located at St. Joseph, Mich.

Brand name sticks . . .

. . . since A. Angonoa, Inc., Brooklyn, N.Y., began marketing its cheese, caraway, wheat, onion and garlic breadsticks to restaurant trade as cellophane-overwrapped one-portion packs. By using a package design for packs similar to design for its bulk supermarket packages, company aims to increase customer recognition and acceptance for type of item not habitually bought by shoppers. Cellophane manufactured by Film Division, Olin Mathieson Chemical Corporation, 460 Park Ave., New York 22, N.Y.

Aunt Jemima aids mass menus . . .

. . . with new portion pack of Buckwheat Pancake Mix, containing just enough (2½ oz) for three restaurant-size pancakes. Polyethylene-coated paper packet joins Aunt Jemima Pancake Ready-Mix and Quick Quaker Oats portion packets. Designed by Clinton E. Frank, Merchandise Mart Plaza, Chicago 54, Ill. Product of The Quaker Oats Company, Merchandise Mart Plaza, Chicago 54, Illinois.



"Bite-size" serving for mustard . . .

. . . in single-portion, "tear-and-squeeze," transparent plastic envelope is designed to aid operators of fast food establishments two ways: 1) eliminate time and expense involved in cleaning and refilling mustard jars; 2) do away with wasteful use on part of customers. Additional advantages include protection against product drying, and additional counter and tray space for other foods. Heinz is packing 250 red-, blue- and black-imprinted envelopes of its popular yellow "Mild Mustard" to the carton. Envelopes manufactured by The Dobeckmun Company, A Division of The Dow Chemical Company, 3301 Monroe St., Cleveland 1, Ohio.

QUESTION

Identical Quality! Yet one is more delicious, appetizing! Why?

ANSWER One contains instant-dissolving Zest® . . . of course

One frozen TV dinner has more taste appeal, sales appeal than the other, and the answer is simple. It contains Zest Monosodium Glutamate. And Zest is so economical. For just a fraction of a cent per pound of finished product, Zest perks up natural flavors. Guards against flavor loss during storage and processing.

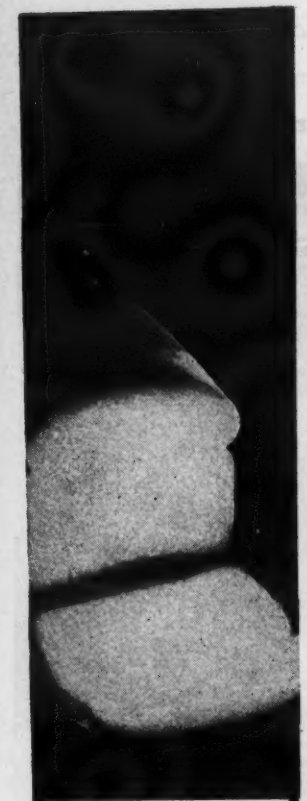
Impartial taste tests on gravies, vegetables, meat products and sea food prove Zest enhances natural flavors, imparts greater appetite appeal without any change in formula or processing time.

For information on Zest, Staley's 99+% pure Monosodium Glutamate, write today to:

A. E. STALEY MFG. CO., DECATUR, ILL.
Branch Offices: Atlanta • Boston • Chicago • Cleveland • Kansas City
New York • Philadelphia • San Francisco • St. Louis

Zest® "makes" the flavor . . . and flavor makes the sale

5010 on Reader Service Slip



IN BREAD

Assures complete, controlled fermentation, enhances flavor and aroma, gives even texture, uniform grain, maximum retention of softness, longer shelf life.

IN CATSUP

Preserves piquant tomato flavor, enhances delicate spice flavors, protects the rich red color of all tomato products.

IN FROZEN DESSERTS

Assures firmer, finer-grained ice cream, with rich butterfat flavor—prevents surface crusting and preserves true fruit flavor in sherbets and water ices.

IN CANNED FRUITS

Enhances true fruit flavor, protects natural color, stabilizes the good eating qualities of fruits—adds appetite and sales appeal.

CERELOSE

BRAND DEXTROSE

For technical assistance in developing improved food processing formulations, contact our nearest sales office or write:

CORN PRODUCTS SALES COMPANY, 17 BATTERY PLACE, NEW YORK 4, NEW YORK

5011 on Reader Service Slip

plants companies personalities

New, $2½ million plant of **Heublein, Inc.** in Menlo Park, Calif., is already in production on Smirnoff Vodka and Andersen Foods Co. canned soups. Plant has 106,000 sq ft floor area, is situated on 11.3-acre site.

In recent executive changes at A. E. Staley Manufacturing Co., Decatur, Ill., **A. E. Staley, Jr.**, center, was elected board chairman and chief executive officer; **Donald E. Nordlund**, left, legal division head, was named vice president, director and executive committee member; and **E. K. Scheiter**, right, formerly executive vice president, was elevated to the presidency.

Central Soya Company, Inc., Fort Wayne, Ind., has acquired Chemurgy Division of The Glidden Company. Facilities consist of soybean processing operations in Chicago and Indianapolis, grain storage facilities in Chicago, Indianapolis, Seneca and Lockport, Ill., and facilities for production of industrial and edible proteins, soya lecithin, soya flour and other soya products. Division will continue under present title, and under direction of Richard O. Westley. Glidden will use new capital to expand paint-food-chemicals operations.

(*More on page 55*)

For more information on product at right, circle 5012 . . . see information request blank opposite last page.

never more luscious!

Re-examination of color techniques by food processors and by color manufacturers during recent months has greatly advanced the creative use of food colors. Many processed foods now have more eye-filling appetite appeal than ever before.

Contributing to this accelerated progress in a major way, National Aniline has intensified research on new and better colors. More than ever before, our Technical Service Laboratories are doing an excellent job of formulating shades for new products and reformulating colors for established lines.

National Aniline supplies the industry's longest line of primaries and secondaries, plus practical application help based on 50 years experience. We will be glad to work with you . . . in confidence, of course.

National® CERTIFIED FOOD COLORS

Allied Chemical

NATIONAL ANILINE DIVISION ALLIED CHEMICAL CORPORATION • 40 RECTOR STREET, NEW YORK 6, N. Y.

Boston Charlotte Chicago Philadelphia Portland, Ore. San Francisco Toronto

PRODUCTS AND PACKAGES

This month's best . . .

"One for the road" . . .

. . . is this 12-oz can of filtered water being marketed in Eastern retail outlets under the "Le Mor" brand label by Pennsylvania Processors, Inc., Lewisburg, Pa. Not only thirsty motorists, but fishermen, picknickers and campers are expected to provide a ready market. Cans are supplied by American Can Company, 100 Park Ave., New York 17, N.Y., which developed the first can capable of holding water several years ago for Armed Forces' emergency use.

Opening tot's dessert no strain . . .

. . . with introduction of new screw-top cap closure for four baby foods in H. J. Heinz Company line — Strained Bananas, Strained Custard Pudding, Strained Fruit Dessert and Strained Apricots and Oatmeal. Heinz deserted standard pry-off cap after research and consumer tests indicated screw-top cap was easily replaced and provided a tight seal after each feeding. New closure, identified by the Alcoa trademark "Flavor-Lok," was developed jointly by the Heinz Research and Quality Control Division and Aluminum Company of America, 1501 Alcoa Bldg., Pittsburgh 19, Pa.

Instant buttermilk . . .

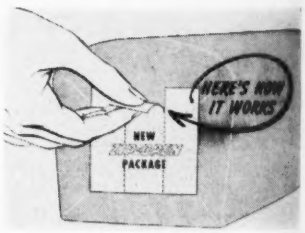
. . . may be used dry or liquefied for cooking and baking. Non-perishable product reportedly saves up to one-half cost of liquid buttermilk, contains real dried buttermilk made by churning sweet cream. Special recipe booklet in each 6.4-oz package. Distribution is being expanded on market-by-market basis, following successful four-city survey. Product of Sanna Dairies, Inc., 916 Williamson St., Madison, Wis. Package designed by Thomas Laufer and Associates, 5710 Arbor Vitae Pl., Madison, Wis. Forsberg Paper Box Co., 2107 Fordem Ave., Madison, Wis., is package supplier.

Holiday butter print

. . . is offered for one-lb prints by Paterson Parchment Paper Co., Bristol, Pa. Design shows red, blue, yellow and green decorations on white snowflake background. Recipe for Walnut Butter Cookies is included in design. Wrappers are high wet strength, grease-resisting Patapar Vegetable Parchment in 8 x 11" size. Wrappers can be furnished imprinted with creamery's name and address.

New line going to dogs . . .

. . . represents new concept — foods for dogs' morning and evening meals. Dog Breakfast Biscuits come in five shapes, flavors and colors. Back of 26-oz, four-color box contains feeding chart for small, medium and large-size dogs. Dog Dinner is a cooked, kibbled food in five colors and flavors. Four-color packages in 26-oz, four-pound and 20-pound sizes have feeding guide for various breeds on back. Companion product, Burgerbits Dog Meal, is sold in two, five, 15 and 25 pound cartons, and in 50 pound bags. Products carry "Walter Kendall Hunt Club" name east of Rockies; in Western states are known as "Walter Kendall Fives." Products of Standard Brands Inc., 595 Madison Ave., New York, N. Y. Packages designed by Clare Barnes, 30 E. 60th St., New York, N. Y., and manufactured by Container Corporation of America, 38 S. Dearborn St., Chicago 3, Ill.



Easy zip replaces rip . . .

. . . as, for first time, bakers are offered a practical, economical method of producing on automatic wrapping machines bread packages which are easy to open and reclose. Zip-Open feature involves use of a special end label and new methods of folding and closing ends of bread wrapper. Tearing down zipper strip exposes folded ends of wrapper, making it easy to complete opening of package. Ends of wrapper remain untorn, allowing effective reclosure. Changes, if any, required on automatic wrapping units are minor, and do not affect ability of machines to continue to handle conventional labels in all types and shapes. Development of Pollock Paper Corp., P.O. Box 1078, Columbus, Ohio.

More Products and Packages on pages 12-13

conventions and exhibits

Sept. 14-23. Society of Chemical Industry, annual meeting, Royal York Hotel, Toronto, Ontario.

Sept. 15-19. Instrument Society of America, annual conference and exhibit, Convention Hall, Philadelphia.

Sept. 21-24. American Institute of Chemical Engineers, 38th national meeting, Hotel Utah, Salt Lake City.

Sept. 26-30. American Meat Institute, annual conference and exposition, Palmer House, Chicago.

Sept. 30-*Oct.* 2. Fourth Military-Industry Packaging Symposium, sessions in auditoriums of Navy Dept., Commerce Dept., Justice Dept., Interior Dept, Post Office Dept. and General Services Administration, Washington, D.C.

Oct. 9-10. Quartermaster Assn., national convention, Ben Franklin Hotel, Philadelphia, Pa.

Oct. 13-15. Assn. of Official Agricultural Chemists, annual meeting, Shoreham Hotel, Washington, D.C.

Oct. 13-15. Packaging Institute, Inc., 1958 annual forum, Edgewater Beach Hotel, Chicago, Illinois.

Oct. 14-16. Society of Industrial Packaging and Materials Handling Engineers, SIPMHE conference and exposition, Coliseum, Chicago, Ill.

Oct. 20-22. American Oil Chemists Society, fall meeting, Hotel Sherman, Chicago, Illinois.

Oct. 20-24. National Safety Council, 46th National Safety Congress and Exposition, Conrad Hilton Hotel, Chicago, Illinois.

Oct. 22-24. American Vacuum Society, Inc., 5th National Vacuum Symposium, Sir Francis Drake Hotel, San Francisco, Calif.

Oct. 25-29. American Bakers Assn., annual convention, Hotel Sherman, Chicago.

How do you like 'em ?

. . . any way you want them, there's a high-speed, precision Urschel machine for **every** kind of pickle cutting job. And cost-minded Pickle Packers know from experience the economy, dependability and uniform product quality identified with these widely used units. Model OV Slicers, for example, produce flat or crinkle-cut cross-cut slices at the rate of **500 slices per second** . . . cutting one slice at a time so there's **no** product crushing on even soft or hollow center pickles. For perfectly diced relish it's the Model RA . . . turning out up to **10,000 lbs. per hour.** Large (3/4" x 1" x 1") sweet mix chunks are delivered by the Model H at capacities up to **15 tons per hour.**

*When you have a pickle cutting problem, remember Urschel engineers have the **experienced** answers.*

PRECISION HIGH-SPEED FOOD CUTTING EQUIPMENT

URSCHEL LABORATORIES INC.
VALPARAISO INDIANA

At the "Pickle Fair", Edgewater Beach Hotel, Chicago, Oct. 22-24, 1958— See These 8 Pickle Cuts at Urschel Booth 21-24.

Designers and manufacturers of precision, high speed cutting equipment for food products

5013 on Reader Service Slip

THE BLAW-KNOX

INSTANTIZER

For more information on product at left, circle 5014 see information request blank opposite last page.

To secure a competitive position, you must consider modernization and expansion of plant and processing. And since costs will probably never be lower than today . . .

Conservatism in capital expenditures now is a risky policy

Food industry must expand, modernize

H. M. Soars, Sr., President
Sprout, Waldron & Company, Inc.

Your question, "Why is now a good time for food processors to proceed with plant expansion and further plant modernization?" might be suspicioned as intending to provoke another 'buy now' campaign.

The food industry needs no synthetic 'depression licking' reasons for expanding or modernizing its production facilities. The proverbial stork is daily providing all the reasons needed.

As long as our population continues to grow, the American people are going to be consuming more and more foodstuffs in every form. And there is certainly no reason to predict that the growth experienced over the past few years is not going to continue for the next several years.

The food processor who wants to grow by taking advantage of increased consumption, resulting from population growth, must obviously expand now if he is going to be in a position to do so.

The past few years have seen the greatest amount of change in food products and their distribution than has ever been witnessed during a similar number of years in all history. There is no reason at all to believe that activity is going to decline.

Instead, there is every reason to believe the sharpened competitive conditions will accelerate the rapidity of changes and the introduction of new and novel means of distribution and transportation.

All of this activity will definitely call for the implementation of immediate plant modernization and expansion program.

Today's food processing equipment manufacturers are in a better position to service the needs of the industry they serve than has been true at any time since before World War II.

More engineering time is available for application to their customers' individual requirements.

More adaptations of a standard piece of equipment for specialized applications of individualized processes can be obtained today than was possible or practical during the more hectic war and immediate post-war years.

Without question, the equipment coming from food processing machinery manufacturers, today, offers design features and values which far surpass those of preceding years. And this equipment offers most attractive returns to customers purchasing it.

Today's competitive conditions are unquestionably sharpening

(*Continued on next page*)

Why conservatism now is risky

Ingram H. Richardson, President
Richardson Scale Company

Rockefeller Center was built during the depression twenty-five years ago. Today it is still a very modern establishment producing a fabulous return on the original investment.

The reasons for the success of this enterprise when scaled down from the level of Rockefeller to that of food processors are just as applicable today as they were in 1932-35.

In fact we have today the added advantage of hindsight and better ability to predict our economic future. Let's look at a few facts, and I repeat — *facts*:

(1) the market for food products will be increasing with the population;
(2) the low-cost producers will get the business;
(3) mechanization lowers cost by increasing manhour productivity and improving quality control;
(4) such mechanization will cost *more* as time goes on;
(5) suppliers are offering their best products, delivery and service at lowest possible prices now.

These are the elementary facts which food processors can put to music after reading any newspaper or trade paper. However, there is another *fact* which they do not know. Conservation in needed capital expenditures, at the present time, is a risky business. Consider the situation of your equipment manufacturers as typified by my own organization.

Our relatively small company is a highly specialized manufacturer of automatic weighing equipment for solids and liquids.

This equipment ranges from single automatic scales to highly integrated systems for proportioning and process control with punch card programming and electronic read-out—i.e., automation in materials handling by weight.

For the last 25 years there has been an extraordinary relationship between the number of proposals (i.e. engineering studies, layouts and quotations) and the volume of actual orders placed.

By applying certain pecentage factors, we have been able to predict our sales a year hence with remarkable accuracy. So, what is the situation today?

For the last twelve months blue chip inquiries have been pouring in. We have substantially increased our proposal engineering and estimating departments to keep up with them. Yet,

Continued on page 22

Coming boom will require more changes in food industry than other industries

Don S. Greer, President
The J. W. Greer Company

We confidently recommend *now* as the time for food processors to proceed with plant expansion and modernization.

Underlying this confidence is the fact that convenience foods have already provided the channel for considerable expansion of the market for food.

The food processor has an opportunity to put more added value into his product. This is the value represented by the time saved for the housewife, as well as the convenience to her. Make these benefits sufficiently attractive to her and she buys.

Her basic demands are price, quality, attractiveness and convenience. The simple question is, 'Can *you* provide these things for her at a profit to you? *Can* you? Can you do so at *increased* volume?'

A further reason for our confidence is that we agree with the theory that has been advanced, which suggests that we are now in an intervening period — the 'middle year or years' between two booms.

This does not necessarily mean a long period of recession, but, rather, a transition from the postwar boom to a new boom in the 1960's caused by population growth and great advances in technology.

If this is so, and there are good reasons to believe that it is, what will the new boom mean to the food industry?

It probably will be more marked than in most other industries, as the tremendous changes in merchandising and the packaging of food products, which started after the war, accelerate at an even greater pace.

New products and procedures will be required to meet new demands, with emphasis, as mentioned above, on 'convenience' items.

In any boom, a great strain is placed on both processors and equipment manufacturers in order to meet increasing demands. The overloading of plant facilities and capacity, labor and equipment shortages, higher interest rates and competition for loans, all combine to make operating costs higher and put the squeeze on profits.

Only long-range planning and preparation for the boom years in slow growth periods, such as we are now experiencing, can ease these difficulties.

We have actually seen this work with a fish processing concern to whom we furnished automatic and continuous processing equipment.

This firm foresaw a coming boom in fish sticks and built a modern plant with efficient equipment. Today, they are the leading producer of fish sticks and other prepared fish products.

And in an industry that has seen a mortality rate of almost 75 per cent of its firms since 1955, they are still expanding. The firms that failed were just not prepared to compete.

In looking to the future with the idea of staying ahead of the competition, plans should be made *now* for greater, more efficient and more profitable production to meet the increased and more exacting demands of our ever-improving economy.

Do this by taking stock of your organization, planning and purchasing. And install the best processing equipment available for your type of operation.

Today's equipment will produce vastly increased quantities of better quality foods at lower cost — and therefore at greater profit to you, the processor.

Following our own advice, we are taking full advantage of this transitional period by strengthening our research, development, laboratory, engineering and other facilities in our well-equipped, modern plant where provisions have been made for expansion and boom business, which we confidently anticipate.

In summary, we believe the market is there for you as well as for us. Get ready for it by using the know-how and facilities at your command today to make greater profits for you tomorrow.

Expand now to avoid future cost increases

William J. Scarlett, General Manager
Lee Metal Products Co., Inc.

Population is increasing at an amazing rate. People are eating more and better than ever before. Competitive conditions demand holding the price line in the face of rising costs.

All signs point to more and rougher competition in the days ahead, not only from the standard products of today, but also from more glamorous and more appealing convenience foods.

Add to this the inevitable inflation that follows deficit spending by government, and unearned wage increases, some of which were contracted for two and three years ago.

All this makes it obvious that to delay expansion, redevelopment and new product plans, is going to make the implementation of these plans more costly in the months ahead. Delay also will mean that competitive forces will lower your profit margins and make the execution of today's plans more difficult to finance tomorrow, next month and next year.

The food industry is most prominent among those in which 1958 mid-year reports make as pleasant reading as the 1957 counterparts. Others are tobaccos, drugs, airlines and utilities.

This means that the food industry has money to spend. Now is an obvious time to add new production lines, revamp and rehabilitate existing equipment and add that new production equipment.

This is the way to meet competition and beat it with new products, increased efficiency, lowered production cost and improved quality.

Now is the time. Prices are bound to be higher before they are lower. And all indicators substantiate the wisdom of making those improvements and plant additions you've been contemplating — and putting off — right now.

Expand, Modernize

H. M. Soars, Sr.

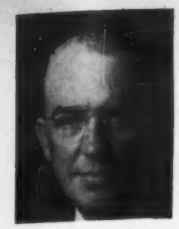
(*Continued from preceding page*)

the wits of sales and design engineers. They are also sharpening the pencils of the estimators.

Managements of food processing businesses do not have to wait for demand to catch up with production. That demand is already keeping pace with production or surpassing it.

The managements of food processing industries accordingly do not have to be concerned with some of the problems that confront managements of some of our nation's other industries.

They know that the production of increased plant capacities will be consumed. They know that when they postpone a logical plant expansion or plant modernization program, every day of delay cannot help but be costly.



'Expand' existing plant without added space

Boyd H. Redner, President
Battle Creek Packaging Machines, Inc.

It is axiomatic that plant expansion and plant modernization can go hand in hand. But let's examine plant expansions within existing plant areas.

For example, packaging machinery may now be purchased which will produce 50 to 100 per cent more packages per minute, per hour or per day than equipment presently being used by many manufacturers.

And in some instances, this increased production is offered using the same amount of floor space.

A bewildering array of new packaging materials is available or rapidly coming into availability.

As a result, many of the present packaging machines have had to be completely redesigned or new models brought out to handle these new materials efficiently.

Many companies are limited to using existing types of packaging materials because of older machinery.

Their operations are frozen at lower production levels than they should be because they are at a disadvantage in relation to present and future labor costs.

Today new packaging materials, offering new appearance and dress, are competing with earlier packaging materials and processes. Thus, competition will grow more intense as new materials become more readily available.

Therefore, now is a good time to reexamine and revitalize both the package and the package machinery producing it.

In most cases, packaging machinery is not brought together on the basis of production methods. Rather, it represents tailor-made machinery, fitted and suited for the particular purchaser's individual requirements.

Cost of such machinery is made up of raw materials, purchased parts, labor, etc.

Raw materials and purchased parts make up between 20 and 40 per cent of the cost. The largest cost by far, however, is charged to hand labor — and usually labor of the highest skills.

In addition, there are the various costs of fringe benefits along with other operating costs required to hold any organization together.

Beyond this, there is usually a well integrated engineering organization servicing the machinery design.

To the extent that labor costs continue to rise, the cost of packaging machinery will also be directly affected. And there is no reason to believe that labor costs will not continue to rise in the foreseeable future.

Bearing this in mind, purchase of packaging machinery now will represent a distinctly lower capital investment than would be the case a year or two from now or later.

How to beat the 'Snarling', competitive pack

Raymond Stevens, President
Arthur D. Little, Inc.
Technical and Business Consultants

Traditionally, general business morale plays a big role in decisions to invest in new plants. To expand capacity in the face of the 1958 recession could appear superficially to be a foolhardy action.

Certainly many will accept the idea of 'buttoning-up' until the recession completely blows over. On the other hand, the threat of war from problems like the Near East situation, may cause many to spend rashly on non-defense plants as they did during the Korean War.

Before accepting either of these mass opinions, however, there are several factors most progressive food processors could and probably will examine.

First, there is the argument that regardless of the state of business, prices will probably continue to rise.

Thus, the idea of buying the plant now, which may soon cost you more, has some merit — providing your supply of cash doesn't shrink with the profit squeeze affecting many firms.

In itself, this is not a compelling argument to increase fixed charges and cut available cash by spending it for plant expenditure. Critical and aggressive management may look further and examine some causes of the profit squeeze which they and their competitors are feeling.

Second, the decline of margins, noted by many food processors, can be traced to excess capacity in their particular industry.

Before accepting the reduced margin as a way of life and continuing intensive promotion and lowered prices, some thought will be given to the source of excess plant, who owns it, and how it came into the market.

Many kinds of food processors — producers of frozen processed foods for example — find that excess capacity is confined to small and often marginal operations within their plants.

Often, each small plant accepts low bids to crank out low priced items, and struggles to meet overhead costs with an inefficient plant. Inferior goods glut the markets and choke the distribution channels. Post-war growth of many food industries has been hectic and headlong. Now, stabilized markets find too many crowding the limited sales opportunities.

In this situation, common to many food processing groups, there is real merit in planning to improve production facilities and leave the 'snarling' pack behind.

It is in the public interest and definitely in the interest of the more competent managements in the industry. It calls for careful thinking and sound answers to some hardheaded questions. Here are some key factors being reviewed by aggressive management:

(1) Can an expanded or relocated plant cut costs to a level far enough below the marginal operators to provide a new, low plateau of costs and pricing, which will eliminate the need for wasteful practices?

(2) Can a better, more uniform product be made in a modern plant; will improved quality control give the consumer something she wants and will pay for today? It is possible that competition in the years immediately ahead will concentrate increasingly on quality, flavor, special sales points, and not solely, or even principally, on price.

(3) Will a different kind of plant make a new line that gives the consumer greater convenience and greater psychic and real income — a line she's willing to pay more to buy?

(4) Can research results now on the threshold of application, such as various continuous process systems, be put into practice and gain any real competitive advantage?

(5) Can the better products of an improved plant mean security for branded goods where private labels have become important?

With the right answers to these kinds of questions, sound investment in an expanded plant can be made today.

Research and careful engineering analysis are needed. But the firms with growing futures will shoulder these responsibilities and pioneer new products, packages and plants.

Modernize your plant to beat the profit squeeze

R. L. Gambill, President
The Globe Company

We feel there are three good reasons to expand and modernize your plant facilities now.

The first reason is to enlarge production facilities in order to supply a predicted increase in the buying power of the purchasing public. Experts have told us to expect this increase early in the 1960's.

Second, there is, at present, a very definite profit squeeze. Production and material costs are still on the rise. Yet, it is difficult to obtain a resultant higher price. The only alternative lies in modernizing plant and equipment, thereby increasing the efficiency of operation.

Third, the marketing concepts in food processing are changing at a very rapid pace. The production of new and novel packaged products, pre-cooked and prepared meals, etc., have outdated many production lines of food processing plants operating today.

A plan of method research in plant modernization is definitely in order for an operation confronted with this problem.

At no time in the future, will expansion and modernization be easier and more economical than today.

This problem of whether now is the time to increase facilities and modernize production was our problem a year ago.

At that time, we decided that in order to keep abreast of the trend, and give our customers the finest equipment and service at the least possible cost, we would have to increase our manufacturing floor space and add considerably to our machinery and equipment.

This expansion was carried out, and we have enjoyed a resultant increase in our production at a lower cost in operation.

Presently, we are telling our customers that now is the time to expand, and modernize. Continued research by our Engineering Department has given the meat industry many new and modern processing plants utilizing such systems as mechanized beef dressing lines and continuous sausage filling lines.

The food processor must act now so that he may be equipped and ready for the future.

Numerous major advances in equipment design available

Howard H. Cherry, Jr., President
Cherry-Burrell Corporation

We are told that the productivity of American industry gains at a rate of about three per cent a year.

This means that to keep pace with competitors, manufacturing plants should be three per cent more efficient next year than this year — and 30 per cent more efficient than in 1949.

Progress in this direction is achieved through constant modernization of the plant and its equipment.

The peak demand for new machinery occurs during the spring and summer season. At that time, engineering and production facilities of equipment manufacturers are under great pressure.

Now that the heaviest seasonal demand has passed, the processor can obtain more individualized and thoroughgoing engineering service from the equipment manufacturers.

As in the past, the manufacturers have again redoubled their efforts during the recent recession period to speed up their new product development and product improvement programs.

This has produced advances in equipment design and efficiency which are being offered this fall for the first time. The new developments feature process improvement, higher capacities, and more automatic processing, with resultant savings in labor.

Since the heavy demand period has passed, equipment makers can meet delivery requirements for 1959 more readily on orders placed at this time of the year.

The continuing upwards trend in costs of labor and materials, indicates that prices of machinery will be under increased pressure. Prices can only go up, and this makes it most advantageous to place orders at current prices.

The processors who anticipate their requirement and their equipment purchasing now will benefit in these ways:

(1) they will get the benefit of current lower price levels;
(2) they will receive more complete and individualized engineering service;
(3) by installing the newest in processing equipment, they will be able to produce their products of superior quality at higher capacities during the coming season;
(4) the greater efficiency of the new machines will enable them to offset, in part, the increased cost of labor with which they will be faced.

Conservatism Risky

Ingram H. Richardson

(*Continued from page* 19)

booked orders are ten to twenty per cent below even normal.

The number of jobs 'in abeyance' has skyrocketed because management has adopted an attitude of 'wait and see'. With this conservatism goes a very great risk.

Let there be a real war scare, or let the government take a markedly inflationary step as the economy did in 1933, and the flood gates will open, releasing a pent up demand which will make present delivery promises utterly impossible.

It happened before and it will happen again. Furthermore, I know I also speak for the 85 per cent of the legitimate scale industry which belongs to the Scale Manufacturers Association, Washington, D. C., and predicts this same situation.

As evidence that I myself believe that business will soon improve, our company has just taken delivery of a new 250-ton press, installed a continuous painting conveyor line, completely rebuilt its machine shop and introduced IBM control to every phase of company operation. These are but a few of the steps we have taken.

Wearing one cap I could prove that we cannot afford such expenditures. But wearing another, I could also prove that without them our competitive position will be seriously jeopardized.

By modernizing now, we got prices that will never be lower, got quality from people who wanted our work and had time to give it their best, and the investment is already paying off in lower costs.

Such are the advantages in completing modernization programs now. Whether it involves a Rockefeller Center or a simple piece of equipment, the same facts apply.

If food processors don't recognize them, I, for one, will at least be able to say 'I told you so' when the opportunity has gone.

Machinery improvements make existing canning lines obsolete

McClure Kelley, President
Baldwin-Lima-Hamilton Corporation

There has seldom been a better time than now for expanding and modernizing the can-making plants that supply the food-packing industry.

Modernization can reduce costs substantially, and the fiercely competitive markets generated by the recession demand that costs be reduced.

The price of can machinery, as the price of everything else, continues to rise. Therefore, modernizing now will be substantially less expensive than modernizing a year from now.

Where plants are not now running at capacity, engineering and operation personnel has time to plan and effect the modernization and expansion needed to anticipate the demands of a growing economy.

Can-making for food products is not as efficient as the industry it serves. A good number of the food-packing processes being used today are at least ten years old or older.

Improvements in can-making equipment over the last ten years, however, have been so substantial that the majority of existing lines are now obsolete.

In ten years, can-line speeds have increased from 300 to 450 cans per minute. Direct labor costs are in a direct ratio to this increase in speed. A can with a direct labor cost of four mills at the 450 rate costs six mills at the 300 rate.

The difference means an improvement of 33 per cent in operating efficiency and operating costs.

Nor is this the only advantage of modern can-making equipment. Its higher speed permits supplying a greater demand with less machinery. And, as modern can machines are much more durable than their predecessors, their operating efficiency is higher.

The down time on today's equipment is 30 per cent less than it was on equipment built ten years ago, even when that equipment was new. Down time costs money, and these costs must eventually be reflected in the prices of products.

The cost situation on can machinery works out this way. Two years ago the bodymaker — the pivotal machine in a line — cost $55,000 in round figures. Today the price is $60,000. By 1960 it can be $65,000.

Prices of other can line machines have increased similarly. So replacement and expansion are not growing cheaper.

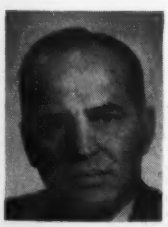
At the moment, we have attempted to stabilize the prices of the machines we make at our Hamilton Division at Hamilton, Ohio, as much as anything can be stabilized in this economy.

We supply all of the equipment needed for a complete can line, and we have removed the escalator clauses from our contracts on this equipment. This means that today you can buy a machine for a firm price, even though the price may increase substantially between the day you make your contract and the day we make delivery.

How long we can maintain this stability remains to be seen. But it is available now, and is a strong point in the argument for modernizing and expanding now.

In the face of growing competition, it seems to me that can making, whether operating as a separate production or as a part of a food processing plant, must bring itself up to date. It must climb up out of the depths of obsolescence.

The rewards of improvement are too rich to ignore. There will be no better moment than now to start realizing them.



Much to gain by buying now

Mercer Brugler, President
Pfaudler Permutit Inc.

In every buying program, purchases must be based on a careful consideration of three factors — cost, quality and delivery. Today, food processors are experiencing an ideal combination of all three factors — stabilized costs, top quality and quick delivery.

That's why now, unquestionably, is a good time to move ahead with planned progress.

Capital goods have, for the most part, held firm on prices over the past several months. However, because the question of price increases in some basic industries has not been fully clarified, and because of the complex international situation, there is no assurance that stabilized prices will be maintained.

Food processors should, therefore, take full advantage of the current price picture.

In quality, too, food processors stand to gain by buying now. Improved quality is a natural consequence of a buyer's market when manufacturers tend to place stronger emphasis on the efficiency of the worker and to re-examine production procedures.

Then, too design and development groups now have a greater opportunity to round out equipment lines and to devote further study to improving quality, increasing efficiency and reducing maintenance requirements of standard equipment.

Quality is further enhanced today by the ready availability of top-quality basic materials.

We need only look back over the past two decades to recall what happens when abnormal considerations force us to live with priorities, substitutes, and long deliveries.

The all-important delivery question now favors the buyer and seller alike.

Reduced backlogs in the manufacturer's factory, plus out-of-stock delivery on basic materials, combine to give the processor the quick delivery he has often wanted, but was not too successful in obtaining.

There is still another important consideration — the current money market.

Dollars for expansion are now more readily available to qualified companies at stabilized interest rates noticeably lower today than a year ago. In buying capital goods, consider the importance of making full use of the manufacturer's facilities.

The many merger headlines in the business press during the past few years point up a significant advantage for today's capital equipment buyer. Numerous companies are broadening their base of operation to strengthen their over-all business position.

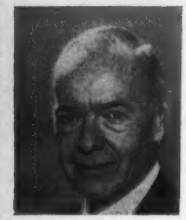
In many cases, this can mean a single source for consultation and recommendation in the design and actual purchase of integrated process equipment.

Take full advantage of the customer service programs available from equipment manufacturers. In most cases, these services are offered without additional cost and are designed to help the food processor get the most from the money he invests in equipment.

Of course, the final decision on expansion and modernization rests solely with the food processor.

Only he knows where his plant facilities fit in relation to the current market and the pending boom of the early 60's. Only he knows how his production picture can be improved.

But, if there is good reason to buy, I firmly believe he has much to gain by buying now.



To increase your market reduce production costs

G. K. Engelhart, Vice President
Fuller Company

Fuller Company's 1958 development, production and marketing planning, respecting the food industries, was based upon a careful market analysis which led us to an optimistic conclusion.

Certain of the factors were obvious and common to both the food processing industries and to their equipment suppliers. These included the availability of capital, the overall trend of mounting labor costs and increasing population.

Since there seemed to be no probability of a decline in these factors, we believed that food processors would necessarily engage in extensive modernization programs, with the objectives of reducing production costs and maintaining and increasing market positions for their products.

Specifically, with respect to our own interests, we were satisfied that there would be an accelerated trend toward the conversion of existing plants to the utilization of modern materials handling methods — in our case, the pneumatic loading and in-plant handling of dry, pulverized and granular materials.

Although high capacity materials handling systems were available for the large producers, our studies made it appear that these systems were not engineered or designed to be scaled downwardly to satisfy the requirements of the smaller producers.

But in order to compete successfully with their larger rivals, they would be required to adopt equivalent methods also.

We, accordingly, undertook a greatly expanded engineering and development program to provide new and appropriately modified components to cover the entire expected materials handling capacity range.

This included accenting equipment specifically designed for the small producer, such as 'packaged' systems.

Based upon our optimistic conclusions as to the future in our present markets, we undertook a major expansion program at our four manufacturing plants. This was completed about the first of the year.

We built a new engineering building to accommodate a force of approximately 200 men, and we expanded our research and development program and facilities to the largest in our history.

This expansion program, in its relation to the food processing industries, also encompassed expanded facilities for the manufacture of our rotary compressors and vacuum pumps.

In addition to the normal applications for plant air, there are increasingly important applications as refrigeration boosters for cold storage, quick freeze, ice cream hardening, and meat packaging.

Following a short 3-month period of uncertainty last winter, the trend we anticipated in the food processing industries appears to be developing.

We expect it to follow the trends in other industries producing or using bulk materials which, likewise, had been reported as 'overproduced'.

Examples of these are the pulp and paper industry, which was said to be overproduced about five years ago; the plastics industries, which were reported about three years ago to have excess production through 1960.

Both industries, faced with similar production cost problems, resorted to modern materials handling methods and became, respectively, our largest markets for pneumatic conveyors.

We confidently believe that our conclusions are sound, and, although specific to our own affairs, that the food processing industries, as well as their suppliers, will find similar factors influencing their decisions.

Today is time for action

E. B. Lehrack, President
The Creamery Package Mfg. Company

Yesterday is gone and tomorrow is always just out of reach. That leaves but one day — today — to decide and do anything. Whatever the action, whenever the time, it will be today.

Everyone wonders when to undertake important activities. Few employ the same process of reasoning but all eventually use the identical measurement of results in comparing conditions before and after the time of decision.

In contemplating the answer to "Why is now a good time to proceed with plant expansion and modernization?", it is obvious that benefits originate through doing and doing and doing!

Indecision, procrastination and delays never take advantage of opportunities which are so abundant in this great land where it seems we are almost too busy to live, like being 'too close to the forest to see the trees'.

The quest for a growing future is the motivating influence that supports courage and venture, generates inspiration that creates invention, calls for know-how and can be cashed to the greatest value through doing.

Today's resources, tools or methods on the shelf will quite likely have less earning capacity another day. Net result — failure to realize returns that could be enjoyed and accumulated through expansion, modernization or process improvements now in 1958.

Investments made now, in modern processing facilities, can provide greater income through the mechanical advancements and research developments of the last decade which represent the outlay of more money and organized effort than the total of all previous years.

Current know-how is applicable now and will be in style for as long a period into the foreseeable future as new ideas will continue ever to endure.

Evolution never admits of discounting the possibility of new ideas. But, as the 'bird in hand is worth two in the bush', the odds are enormously in favor of the gains available through progressive action to proceed now with modern improvements that assure greater income through maximum operating efficiency and quality control.

In a time of easy money with interest rates as low as those of 1958, capital — not invested — can scarcely be considered of rare value when — advantageously invested — it would buy more output, more uniform if indeed not higher quality, for less unit cost, than is possible with facilities that are out of date and well depreciated.

Moreover the chances are on the side of the 1958 capital investment dollar purchasing more than it will in later years.

From processor-to-port-to-overseas-customer, shipment stays in same container as . . .

CARGO VAN GOES 'FISHY-BACK'

- **cuts individual item handling drastically**
- **minimizes port time**
- **protects against damage, pilferage**

By **NORB LEINEN**
Associate Editor

Ocean-going shipping method under development by Matson Navigation Company promises reduced item handling and is expected to get goods into customer's hands 24 hrs after ship arrival.

Method is based on versatile "cargo containers" that travel overland via special-chassis truck-trailer. For ocean transport, cargo vans are carried on decks of conventional freighters. The chassis are not carried aboard ship.

According to research studies, about 65 per cent of total West Coast-Hawaii westbound cargo and 35 per cent of eastbound cargo can be classified as potential van cargo. Latter category includes fresh pineapple, such canned products as papaya, guava, pineapple.

Practically anything that can be shipped in trucks can be shipped by ocean-going cargo vans. Van is built like a semi-trailer body, detaches quickly from chassis, is constructed to withstand shipboard conditions.

How plan operates

Freight is loaded into containerized van by processor at his plant, sealed, and van is delivered direct to consignee at port of destination, still sealed.

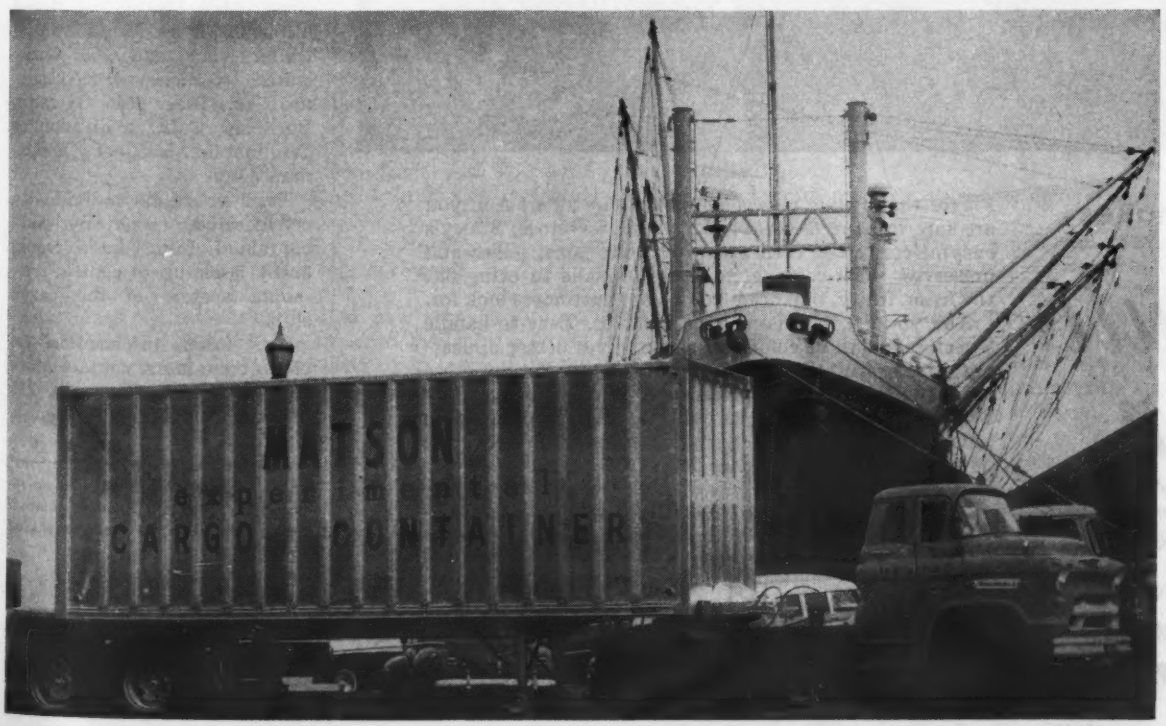
Items are handled only twice — once when van is loaded, again when unloaded. Conventional shipping involves seven or eight handlings of individual items.

Chassis and empty vans will be held by Matson in marshalling yards near ship terminal for use by trucking companies when shipment is ordered by a processor.

In addition to speeding up shipments and virtually eliminating cargo damage and pilferage, cargo van method is expected to effect a close liaison between rail, truck and marine facilities — a source of further savings.

Matson's containerization program is already underway, with deck conversions completed in late August for the last of six vessels for weekly

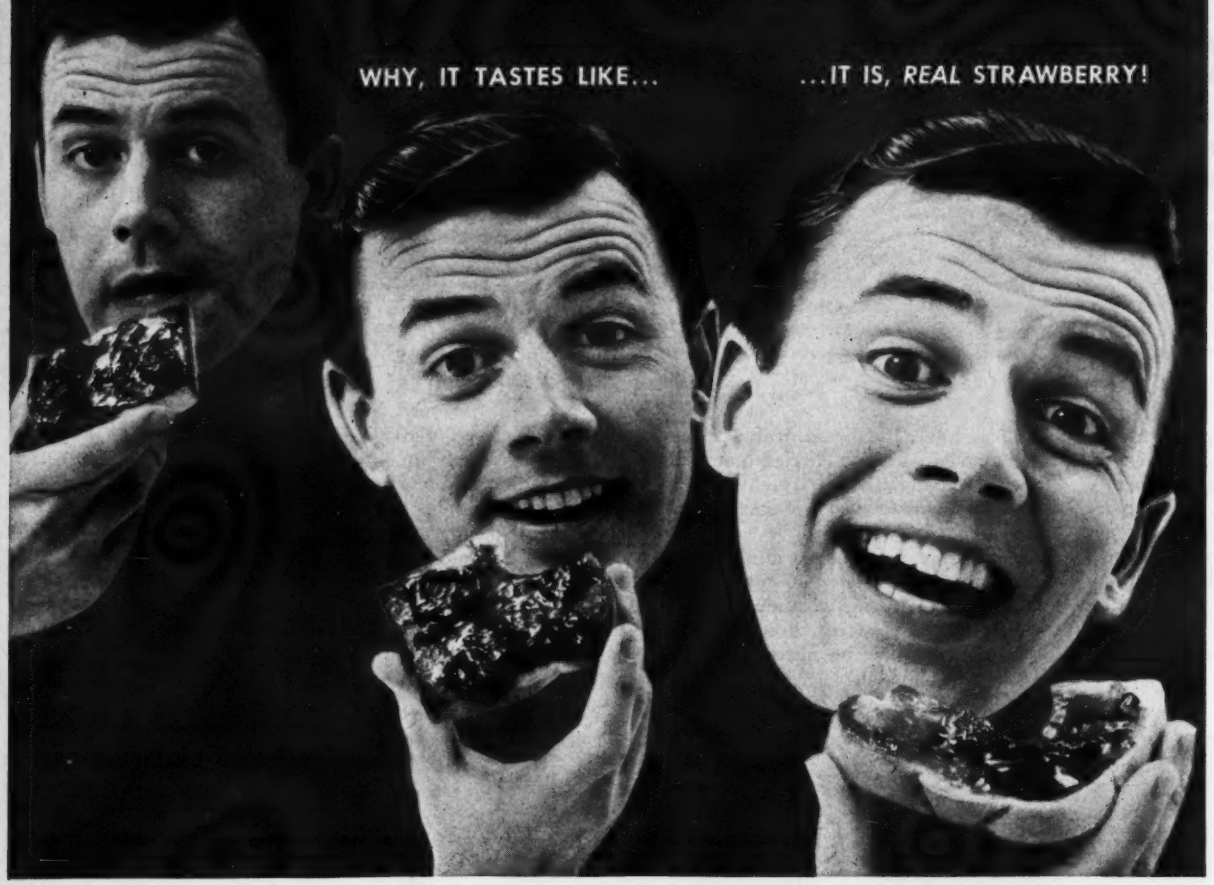
(*Continued on next page*)



◀ Aluminum-reinforced cargo van, holding 25 tons, forms semi-trailer when hauled on special chassis. Van best suited to Hawaii trade is 24' long, 8' wide, 8½' high

Flavor-Upper...

HO-HUM, SAME OLD THING..



How Sweetose makes

True Fruit Flavor

Come ALIVE—

IMPROVES TEXTURE, TENDERNESS! GIVES EYE-APPEALING BRIGHTNESS TO ALL JAMS, JELLIES, PRESERVES!

Flavor that's alive means sales that *stay* alive! And you are sure to have flavor when you use Sweetose, Staley's enzyme-converted corn syrup, in your jams, jellies and preserves. Fast-cooking Sweetose is made to bring out the fresh, fruity, balanced flavor your customers look for.

And you get lots more besides flavor. Easy-to-handle Sweetose enhances color and sheen, gives better appearance to any fruit. Texture is improved, too. Yet Sweetose costs less than other sweeteners. Why don't *you* try Sweetose . . . and prove its dollar-saving, flavor-building advantages to yourself? See your Staley Representative or write us today for further details.

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Sweetose®
THE *ORIGINAL* ENZYME-CONVERTED CORN SYRUP

5015 on Reader Service Slip

(*Continued from preceding page*)

service between Hawaii and both Los Angeles and San Francisco.

These ships will initially handle 40 cargo containers on deck, conventional cargo in holds.

Implementing plan

Long-range plans call for development of freighters to carry vans exclusively, below decks as well as on deck. This program will depend largely on results of deck movement operations.

The cargo-van vessels would be a part of the fleet which would include freighters equipped to carry van deck loads and non-van cargo in the holds.

With entire ship equipped to handle nothing but cargo vans, the loading which now takes approximately five days could be accomplished in one day. Unloading time would likewise be shortened.

This would mean more round trips for each ship.* Thus, shipping costs should be stabilized to provide a relief from upward spiraling freight rates.

Prototype units for refrigerated cargo vans are being constructed. Matson has placed initial order for 350 aluminum trailer vans and 275 semi-chassis trailers with Trailmobile, Inc., 901 Gilman, Berkeley, Calif., a division of Trailmobile, Inc., of Cincinnati, Ohio.

Vans could be individually refrigerated, either by self-contained units like a truck, or by hook-up to central ammonia system of the cargo ship.

For fuller information on cargo containers, contact Matson Navigation Company, 215 Market St., San Francisco 5, California.

*Ratio of empty to filled vans on return trips would be same as current return trip ratio of used to unused space.

Additional developments affecting transportation reported on page 32.

John P. Snyder, Jr.

what's wrong with the FLOUR INDUSTRY?*

There is great need for basic knowledge and fundamental research, offering new developments and new products to increase per capita consumption of flour

JOHN P. SNYDER, Jr.
Vice President
Pillsbury Mills, Inc.

The main problem of the milling industry today is purely and simply one of underconsumption.

Per capita consumption of wheat flour products in the US in 1910 was 211 pounds. The initial forecast for 1957-58 is 118 pounds. This is a 44 per cent decline over this 47-year period.

Only because of tremendous population increases — up 85 per cent during this same period — has total flour consumption gone up about two per cent.

Cereal products have not been able to keep pace with the competition of hundreds of new foods.

Flour milling lags in research

Development of new wheat products is hampered by lack of basic knowledge on raw materials.

One of the big areas of technical deficiency in flour milling is our inability to write quantitative specifications for flour. Most other industries are able to define their products precisely in quantitative terms based on objective tests.

But we have to rely primarily upon a baking evaluation which is neither quantitative nor objective. This is a frustrating situation for production people.

The miller or the process engineer doesn't really know what he is trying to accomplish. This is one of the reasons why there has been so little process improvement in the last 50 years.

Bake tests are not well standardized. They leave too much room for disagreement between supplier and customer.

We need to isolate and identify the so-called quality factors in wheat and flour.

Every year we go through a period of distress when the new wheat crop arrives. We know spring wheat flour performs differently from winter wheat flour, but precisely what is the difference between the two that results in different performance?

The adjustments that have to be made each year with the flour from different wheats are predictable to some extent on the basis of chemical and physical tests.

In some products, however, the adjustments are more difficult than in others, and we still have too much trouble. We do not know how to deal directly with the problem.

As a result, we use trial-and-error methods and dilution techniques to take us through the transition. I conclude that we just do not know enough about the chemistry of the products we make.

Our industry has researched proteins extensively. But have wheat starches been studied as much as they should have been? How much do we know about molecular bonds, enzymes or fats in flour?

Need for uniform flour

With commercial bakeries rapidly making their operations as completely mechanized as possible, great pressures are being put on flour millers and their cereal chemists to produce a flour that is completely uniform.

Bakers need a flour whose shop performance can be absolutely predicted and a flour that will benefit them by greater yield of bakery foods per 100 pounds of flour.

One major innovation has made its appearance in our industry as a result of work done in recent years on air separation or air classification of flour.

This is a development by Pillsbury Mills called the "turbo milling process" which was presented in the May FOOD PROCESSING.

Such processes permit the production of flours that are particularly suited for various baking purposes.

The flour industry is also faced with a tremendous amount of by-product to dispose of. The formula feed industry has been an excellent outlet for our millfeeds, and the demand has been good enough to give us a fair recovery.

In recent years, however, we have seen a marked decline in the use of millfeeds in animal feeds.

Feed manufacturers have been turning to other sources of protein — notably soybean meal — which are nutritionally advantageous at lower costs.

This has presented us with a disposal problem, and the low recovery, dollarwise, has affected flour costs.

Increasing the value of by-products will lower flour costs, which should increase flour consumption by making flour more competitive with other foods.

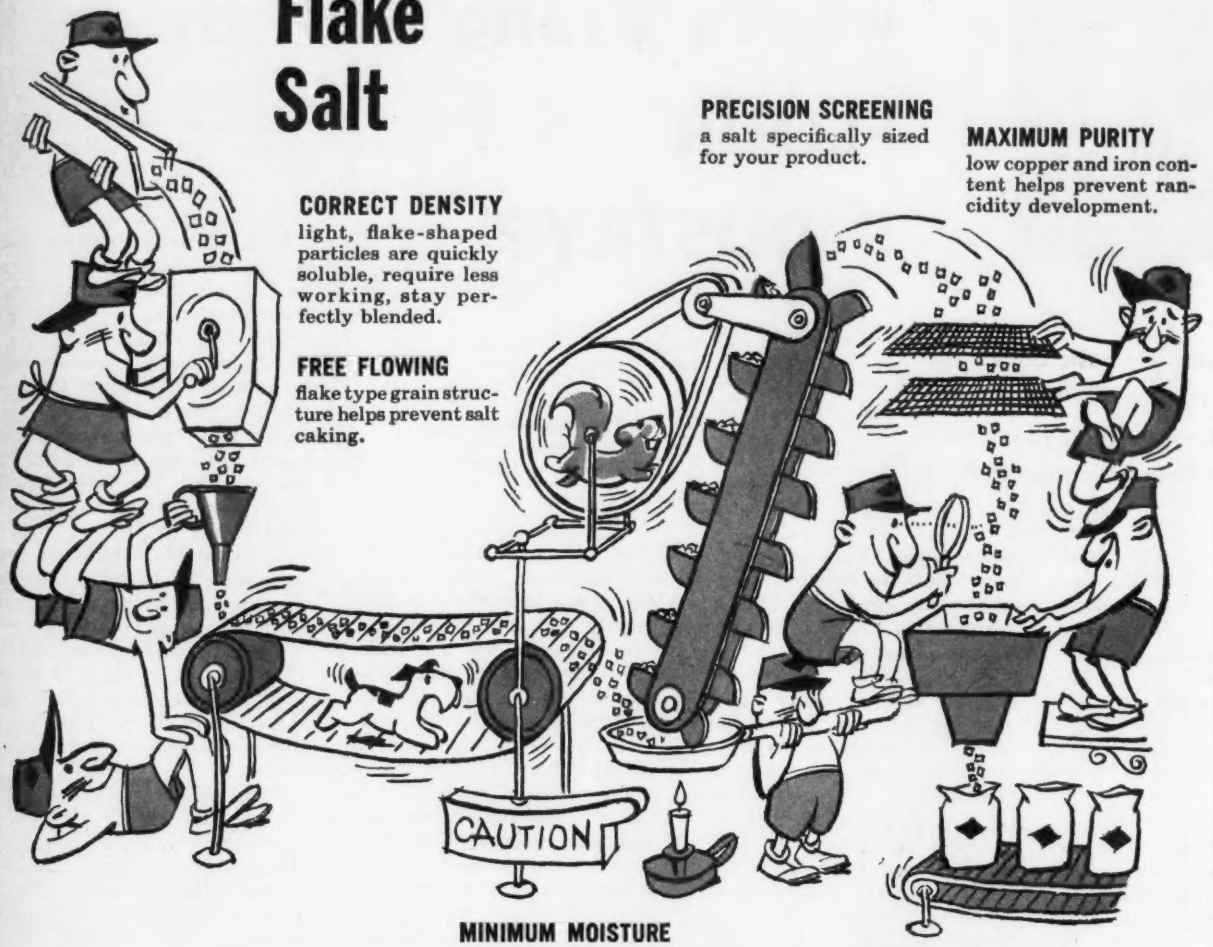
It will take many new developments in the flour industry to maintain the per capita consumption against the competition of other food developments.

It will take a lot of real basic research before we can piece together the answers to the many questions not yet answered in our industry.

Future growth of the industry depends upon cereal chemists who have a major role to play in developing fundamental knowledge of flour mill products. For in most cases, the answers are hidden in the fundamental chemistry of the components of flour.

*Taken from an address by Mr. Snyder presented at the 43rd annual meeting of the American Association of Cereal Chemists at Cincinnati, Ohio.

Diamond Crystal Flake Salt



PRECISION SCREENING
a salt specifically sized for your product.

MAXIMUM PURITY
low copper and iron content helps prevent rancidity development.

CORRECT DENSITY
light, flake-shaped particles are quickly soluble, require less working, stay perfectly blended.

FREE FLOWING
flake type grain structure helps prevent salt caking.

MINIMUM MOISTURE
salt dried to less than 1/10 of one percent helps eliminate salt storage problems.

TRUE FLAVOR
results from Diamond Crystal's exclusive Alberger process. It brings out the best in your products.

Its worth is reflected in your product

Look at the facts. *Flake*—not cube or granular—is the positive answer to the use of salt in virtually all food processing operations.

It all boils down to your product quality. We can help. Write to—Technical Department, Diamond Crystal Salt Co., St. Clair, Michigan, for proof—for facts—or talk to the Diamond Crystal salesman.

Diamond Crystal Salt Co.

5016 on Reader Service Slip

New studies on short-lived intermediate products of radiation-catalyzed reactions may lead to

better irradiated foods

What happens during a chemical reaction catalyzed or set off by atomic radiation? With the help of a new research tool — a high energy electron accelerator — scientists at Argonne National Laboratory, Lemont, Ill., will seek an answer to that question, beginning this fall. They hope to detect directly the short-lived intermediate products involved in radiation-catalyzed reactions. By identifying these primary products and learning their basic reaction mechanisms, they expect to arrive at better methods of protecting living organisms from radiation effects, with consequent better use of irradiation in preserving foods free of off-flavors and odors.

Transients in radiation chemistry are to be studied in techniques similar to those now used in flash photolysis — a process in which small amounts of a chemical are subjected to intense bursts of light so that very fast reactions may be observed. Solid, liquid, and gaseous systems will be studied similarly, using bursts of electrons.

Instrument making this investigation possible is a 15-ft-long linear electron accelerator, powered by a single 5-megawatt klystron. Because of the intense pulse of high energy electrons emitted by the accelerator's 280 milliampere beam — 1800 million billion electrons/sec — short-lived intermediates such as radicals or ions are likely to be produced in such concentrations as to be directly observable. Pulse rate will be varied from a single, manually fired pulse to 800 cycles/sec.

Argonne plans to use the accelerator to pursue studies in radiation damage and nu-

(Continued on page 31)

For more information on product at right, circle 5017 . . . see information request blank opposite last page.

You name it...
STANGE
will season it better!
. . . because with Stange, seasoning is both a science and an art: Science —in processing the basic seasonings: Art—in the application of these seasonings to your products to achieve distinction in their field for flavor and eye-appeal.
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TALENT TO CREATE
SKILL TO PRODUCE
FLEXIBILITY TO FIT YOUR NEEDS

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CREAM OF SPICE SOLUBLE SEASONING • GROUND SPICE
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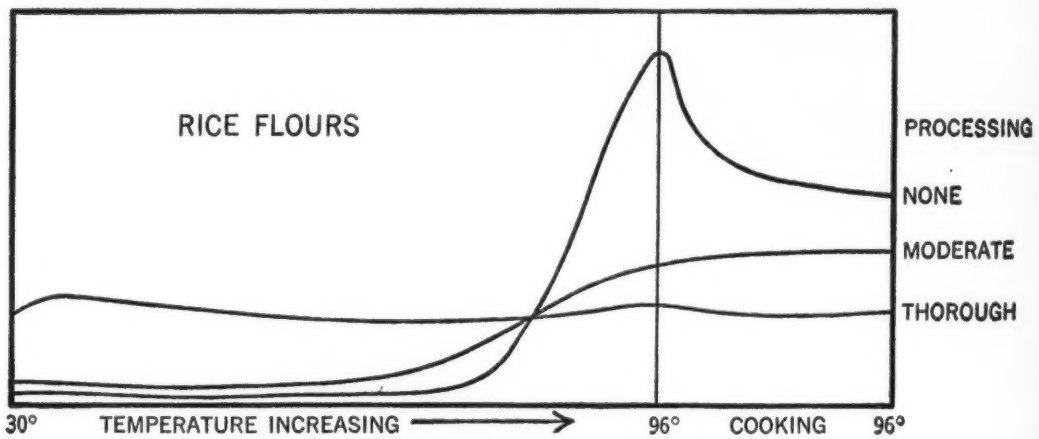
NOW! From The Quaker Oats Company...

Flours PREGELATINIZED to fit your needs



EXAMPLE: The above amylograms illustrate the effect of varying degrees of thermal treatment upon the cooking characteristics of rice flour. Raw rice flour thickens rapidly but is followed by appreciable "Set-back" upon extended cooking. Thoroughly processed rice flour hydrates well in cold water and maintains its viscosity throughout the heating and cooking cycle. Quaker can supply rice flours with any degree of processing within these limits.

Now Quaker can supply you with flours pregelatinized to fit your processing needs.

Quaker's control over gelatinization combined with special grinding and drying techniques can provide corn, barley, rice and wheat flours which thicken rapidly upon heating or which exhibit very little viscosity change during heating.

Pregelatinized, low bacteria flours or meals may shorten the processing time required to produce commercially sterile canned goods. They may also reduce the time needed for cooking, gelatinizing, or dextrinizing.

Quaker will help you select the type of flour and the degree of gelatinization best suited to your products. For information on this service, write to address at right.

QUAKER

Industrial Food Sales Department
The Quaker Oats Company
Chicago 54, Illinois

5018 on Reader Service Slip

Irradiated foods

(*Continued from page* 28)

clear chemistry, as well as in radiation chemistry. Using electrons, scientists will study the character of radiation damage in which the displaced atoms are isolated, and will attempt to determine critical (minimum) energy needed for atom displacement. To permit the latter, the accelerator includes a magnetic spectrometer which allows irradiations with monoenergetic electrons (electrons having the same energy and velocity) over the entire energy range.

The linear electron accelerator is being built by Applied Radiation Corp., 2404 N. Main, Walnut Creek, Calif.

American diets tend to be deficient in thiamine

Concern for the trend toward low levels of thiamine in the American diet is being expressed with increased frequency according to Dr. William B. Bradley, Scientific Director, American Institute of Baking, Chicago.

High income diets, dietary restrictions and emphasis on obesity are all contributing toward this trend.

High income diets usually mean a shift away from grain products and lean pork, both good sources of thiamine. Foods to replace these products very often are not equally good sources.

Offering a sharp note of caution to doctors prescribing restricted diets, Dr. Bradley states, "When making dietary recommendations, due consideration should be given to the inclusion of substitute sources of thiamine."

Emphasis on obesity has caused many to eliminate bread from their diet because of the erroneous concept that bread is fattening.

Dr. Bradley points out, however, that through the enrichment program, bread today "contributes a higher proportion of one's needs for protein, thiamine, niacin, calcium and iron than it does of one's need for calories."

1. Merck is your new basic source of supply for MSG. Recently completed Merck production facilities with multimillion pound MSG capacity can satisfy even the healthiest appetite for this important flavor-enhancing ingredient.

2. You can depend on Merck for unlimited quantities of MSG because the unique and technically advanced fermentation process utilizes raw materials which are available in unlimited supply. No other Merck product or process competes for this supply.

3. Like all Merck food processing ingredients, the quality of Merck MSG is unsurpassed. It meets the highest quality-control standards for monosodium glutamate 99+% pure.

4. Merck MSG is available in two forms—Crystals and Fine Crystals—to fit your requirements. It is packaged in 100-lb., 50-lb., and 10-lb. containers.

5. Merck MSG deliveries are fast, since distribution centers are strategically located from coast to coast.

6. The Merck Food Research and Technical Laboratories are fully staffed and ready to serve you. Technical assistance, including MSG assay service, is available on request.

7. Ask your Merck representative for complete information about Merck MSG or write directly to:

MERCK & CO., INC.
RAHWAY, NEW JERSEY

© Merck & Co., Inc.

5019 on Reader Service Slip

RHOZYME

Diastatic Enzymes

when you want free-flowing sirups of high solids . . . at low cost

With RHOZYME Diastatic Enzymes you can solubilize, saccharify, or modify food starches without sacrificing other properties vital to good products and good processing. For, RHOZYME Diastatic Enzymes assure specific, controlled action without undesirable side reactions.

Many users have found that the RHOZYME family's selective action, as well as its low cost, makes it an effective, economical answer to such processing problems as:

Processing of Pre-Cooked Cereals —by permitting higher-solids processing without raising viscosity and thereby increasing plant output.

Production of Corn Sirup — by saccharifying corn starch to make sweet, non-bitter sirups.

Production of Cocoa Sirups — by lowering viscosity so that sirups pour more readily.

Bread-Making — by modifying bread starch for better texture, grain and shelf-life.

Can you use RHOZYME Diastatic Enzymes to help you? Find out by writing to Department SP.

RHOZYME is a trade-mark, Reg. U. S. Pat. Off. and in principal foreign countries.

Chemicals for Industry

ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

Representatives in principal foreign countries

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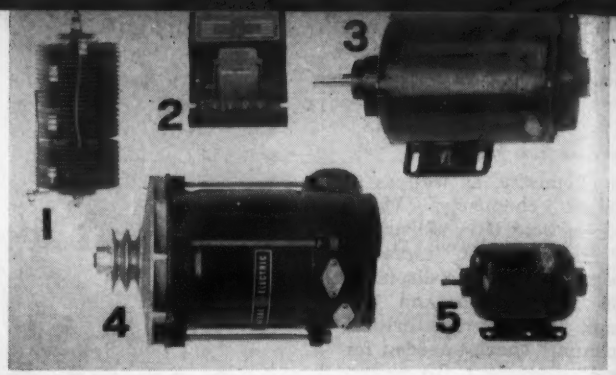


"Power package" of GE electric truck refrigeration system includes: 1) rectifier, 2) regulator, 3) DC compressor motor, 4) alternator, 5) series-wound fan motor

Kraml Dairy, Chicago, recently equipped five of its 25 refrigerated trucks with new all-electric systems. Arrow points to condensing unit mounted under truck body. Small box has 115-volt AC inlet for standby plug-in

'Package' electrical system provides

Uniform truck refrigeration

- **Standby cooling built in without added bulk, cost**

All-electric truck refrigerating system is answer to heretofore sizable problems of maintaining full cold capacity at slow engine speeds, or when truck is making prolonged stop or is parked for the night.

Powered off the crankshaft, electrical system maintains constant, thermostatically controlled temperature regardless of engine speed.

Outstanding unique feature allows plug-in to commercial power outlet — without adding to system's weight, bulk or cost. This allows loading and unloading to be scheduled for most convenient and efficient times.

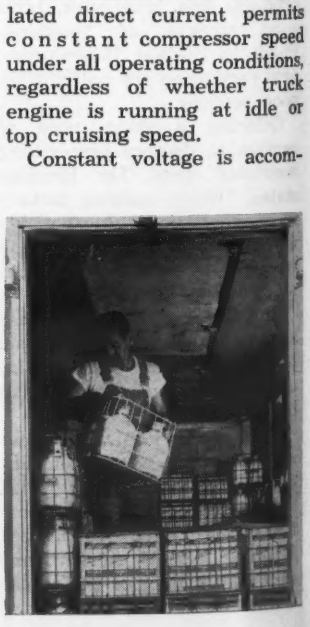
How it works

Five components make up the electrical system: alternator, rectifier, compressor drive motor, evaporator fan motor and voltage regulator.

Heart of the system is the alternator, belt driven off the crankshaft, which generates 3-phase, variable frequency AC power. Current is transmitted through three wires in single cable to selenium rectifier, located in refrigeration unit. Rectifier converts alternating current to 90 volt DC.

Both compressor motor and evaporator fan motor operate on DC current. Use of regulated direct current permits constant compressor speed under all operating conditions, regardless of whether truck engine is running at idle or top cruising speed.

Constant voltage is accom-



Lightweight ceiling-mounted cold plates in Kraml trucks replace two 5½"-thick plates formerly mounted on sides. Result — 270 lb less weight, more space, more payload

around the clock

- **Holds specified cooling temp at top speed or idle**
- **Lightweight, compact — ups payloads**

plished by voltage regulator through a feedback circuit from the rectifier through the regulator and back to the alternator.

Voltage regulator constantly adjusts the field of the alternator to maintain required voltage — key to providing uniform over-the-road cooling temperatures at all engine speeds.

During standby operation, rectifier assures dependable power, without addition of any component parts. Rectifier converts alternating current from 115-volt outlet to direct power, and refrigerating system continues to operate at full capacity.

System is adaptable to many different application arrangements — may be "built into" new units by truck body builders or added to units of present truck fleet.

One operator has mounted his refrigeration system in a forward corner of the truck body cooling compartment.

Another has mounted entire unit in a small cubicle just forward of rear wheel, from which it refrigerates cold plates within the compartment.

In a third variation, involving straight-body trucks, compressor and condenser coils are mounted on outside of the forward end of cooling compartment, with only evaporator coils and fan motor mounted inside.

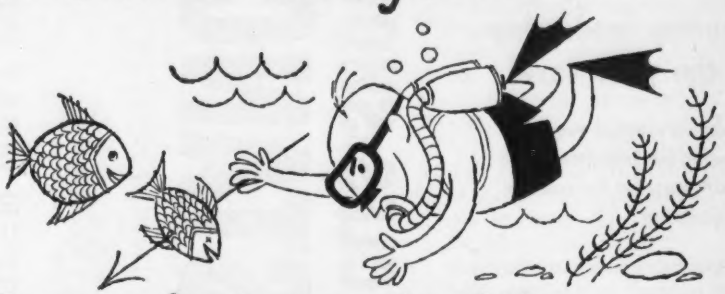
"Package" electrical systems have been developed for ¾-ton milk delivery and other retail trucks, 1- and 1½-ton ice cream or frozen food local delivery trucks and 3-ton and larger semi-trailer over-the-road units.

Although systems generally are designed to maintain temperature in the 35-40°F range, special low temperature requirements down to zero and below can easily be met by substituting a refrigeration system of larger capacity.

Electrical components for the fully automatic, thermostatically controlled, uniform temperature, all-electric truck refrigeration units are development of General Electric Company, Specialty Motor Dept., 1635 Broadway, Fort Wayne, Ind.

For more information on this product circle 5021 on Reader Service Slip.

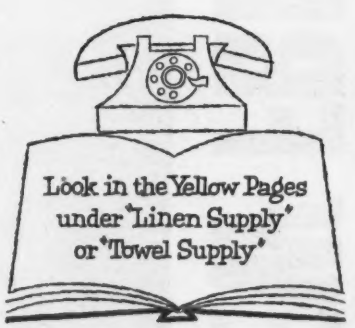
No matter who you are ...



the easiest way to get

cotton towels, uniforms & linens

is to call your Linen Supply Man!



You only call once to arrange for regular, dependable delivery of all your linen requirements. You get the luxury and quality of cotton cloth. (And, of course, there is no substitute for cloth.)
The nearest Linen Supplier is no further away than your telephone. Call today.

Note: No investment, no maintenance, no inventory. Everything is furnished and serviced by your linen supplier, at low cost, and tailored to your needs.

Linen Supply

ASSOCIATION OF AMERICA
and National Cotton Council
22 W. MONROE ST., CHICAGO 3, ILL.

5022 on Reader Service Slip

Develop leadership at the work level

Supervisory action requires knowing job importance and specific answers to recurrent job problems

How to improve the job performance of foremen and supervisors is outlined in 12-page brochure.

Brochure contains actual samples of 52-weekly managerial service aids to be used in developing leadership at the work level.

Material is aimed toward broadening managerial viewpoint, enlarging the area of a man's responsibility acceptance, improving his handling of people and encouraging and assisting his planned approach to each work week.

Among material included are samples of 40 feature issues offering information on basic industrial and business news.

Samples also show six managerial skill studies, mailed every other month, on the most essential areas of self-improvement.

Sample data books for memos and weekly planning, along with a feature executive letter are also included.

Price list and order form indicate cost to management for this service.

Brochure on management information, "New Horizons for Supervision", is available from Elliott Service Co., Inc., 30 N. MacQuesten Pkwy., Mount Vernon, N. Y.

For your copy simply circle 5023 on Reader Service Slip.

Portable cobalt irradiation unit available for lab

Uses: Designed for use as standard item of laboratory equipment.

Unit is suitable for scouting experiments of radiation effect on chemical or biological systems, plastics and other materials.

LIQUID SEPARATION AFTER FREEZE-THAW CYCLES SHOWS NEW FREEZE-THAW RESISTANCE

FOR FROZEN MEAT PIES
FRUIT PIE FILLINGS
GRAVIES · SOUPS · SAUCES
ORIENTAL FOODS

Look at the extraordinary freeze-thaw resistance shown graphically at left. It's produced by COL-FLO, a newly improved starch thickener that resists breakdown after as many as five freeze-thaw cycles. It's a new safeguard for frozen food quality.

COL-FLO actually improves—as well as safeguards—frozen food quality. It offers:

UNRESTRAINED FLAVOR

UNRESTRAINED FLAVOR—Flavors from appetizing meats to delicate fruits have nothing to overcome. COL-FLO never introduces undertones of cereal taste. A difference you can taste!

SPARKLING CLARITY—A crystal clear glossiness highlights appetizing natural colors. COL-FLO doesn't turn cloudy between freezing and eating. A difference you can see!

COMPARE COL-FLO—Check this smooth, short textured starch against any thickener you're now using. COL-FLO may well answer some special need in your product or process. Write if you'd like to know more, telling us something of the use you have in mind.

National STARCH PRODUCTS INC.

750 THIRD AVENUE, NEW YORK 17
3641 WASHTENAW AVENUE, CHICAGO 32
735 BATTERY STREET, SAN FRANCISCO 11

5024 on Reader Service Slip

Features-Description: Holding 62 curies of cobalt 60, self-contained radiation source stands less than two feet high.

Dose rate is over 100,000 r/hr. Unit is priced at $2950.

Portable cobalt irradiation unit (Gammalab) is a product of Radiation Applications, Inc., 342 Madison Ave., New York 17, New York.

For more information circle 5025 on Reader Service Slip.

Frozen milk retains freshness 12 months

Product must be kept at 10°F to assure safe storage life

A process has been developed whereby frozen milk will retain its fresh characteristics after 12 months storage.

In the process, fresh milk is first pasteurized by batch or HTST method. Milk is then subjected to ultrasonic vibrations (previously reported in FOOD PROCESSING).

Following this, plastic containers are filled, heat sealed in a standard sealing machine. Milk is then immediately frozen at 5°F. Entire operation is completed in less than 60 min.

Final product must be stored at 10°F or less to assure safe storage life. On thawing, physical properties and quality of milk are equal to, or better than, pasteurized milk.

It develops a normal cream line on standing, and has a colony count lower than that of the pasteurized milk from which it was originally produced.

No evidence of physical change in proteins has been observed.

Process for frozen milk was developed by National Institute for Research in Dairying, Shinfield, Reading, England.

The National Research Development Corporation, London, has applied for patents on process in 12 countries, and patent rights are being licensed in return for a royalty payment.

NOW 3 SUPERIOR CORN SYRUP SOLIDS

carry the OK BRAND of QUALITY

1. OK DRI-SWEET 42 D.E.—(Granulated)
2. OK DRI-SWEET 42 D.E.—(Powdered)
3. OK DRI-SWEET Low D.E.—(Powdered)

for Better Conditioned, Finer Flavored Foods

OK DRI-SWEET 42 D.E. (GRANULATED) is especially suitable for seasoning comminuted luncheon meats, smoked, cured and preserved meats. It is colorless, reduces watering off, cuts shrinkage, improves texture, is a better binding agent and can be used in greater quantity for maximum fill.

But, whether you produce prepared meat products, dry food mixes, frozen foods, ice creams, soup mixes . . . if you want finer flavor, better texture, controlled moisture, increased solids, and improved shelf life . . . *if you want quality at no extra cost* . . . you can get it with the OK BRAND DRI-SWEET Corn Syrup Solids. In fact, *only* OK DRI-SWEET Corn Syrup Solids provide a combination of *so many advantages in a single conditioner-seasoner.*

Write today for detailed data on how OK DRI-SWEET Corn Syrup Solids can help you improve your production, or phone for a Hubinger Food Products Technician. You'll find him and the Hubinger Customer Research Service OK too.

HUBINGER — QUALITY PRODUCTS — 77 YEARS — FROM CORN

The Hubinger Company

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NEW YORK • CHICAGO • LOS ANGELES • BOSTON • CHARLOTTE • PHILADELPHIA

5026 on Reader Service Slip

Institute of Food Technologists

Establishes award for industrial achievement

Outstanding achievement in originating or developing a food process and/or product which represents a significant advance in the application of food technology to production will be honored by newest of annual awards officially sponsored by Institute of Food Technologists.

The Food Technology Industrial Achievement Award will apply both to the company or institution concerned, and to the individual or individuals judged to have made major contributions to the achievement, either through basic research or development.

Former will receive a bronze plaque; latter, public recognition at time of presentation, and an engrossed plaque.

To be eligible for the first such award, process and/or product must have been successfully applied in actual commercial operation for not less than six months or more than four years prior to September 15, 1958.

Nominations, in single-spaced, typewritten letter form, may be made by any member of IFT.* Nomination must be confined to three pages, and must include:

a. Name of company or institution
b. Name of product and/or process
c. Description
d. Reason achievement is meritorious
e. Individuals chiefly responsible, and their individual contributions
f. Time and extent of commercial utilization

Nominations, bearing a postmark of not later than December 10, 1958, should be sent to:

Institute of Food Technologists
176 W. Adams Street
Chicago 3, Illinois

*Readers of FOOD PROCESSING who are not members of Institute of Food Technologists, but who might wish to make a nomination, may refer to the services of any of the editors — all of whom have IFT memberships.

New food preservative more water soluble

- **controls yeast and mold spoilage**
- **taste, odor or aroma unaffected**

Uses: Wherever limited water solubility of the fungistat, sorbic acid, has presented mixing or blending problems.

For preserving foods when heat treatment is either not desirable or not feasible.

Recommended for citrus fruit cocktails, fruit juices, cucumber brines, pickle packing sirups, cider, salads, soft drink concentrates, fountain sirups, jams and preserves, cheese and cheese products, pies, cakes, and cookies, packaged mixes and other processed and fresh foods.

Features-Description: Solubility is much higher. Whereas sorbic acid is water soluble in the order of one tenth per cent, potassium sorbate is soluble (by weight) in water between 55-65 per cent.

Effectiveness, like that of sorbic acid, is based on inhibition of biological process of mold growth. New inhibitor will control mold growth but doesn't interfere with action of other microorganisms such as those used for curing cheese.

Increased concentrations of about one-third are recommended when potassium sorbate is substituted for sorbic acid.

When used at concentrations of less than 0.2 per cent, safe, effective mold control is attained without affecting the taste, odor or aroma.

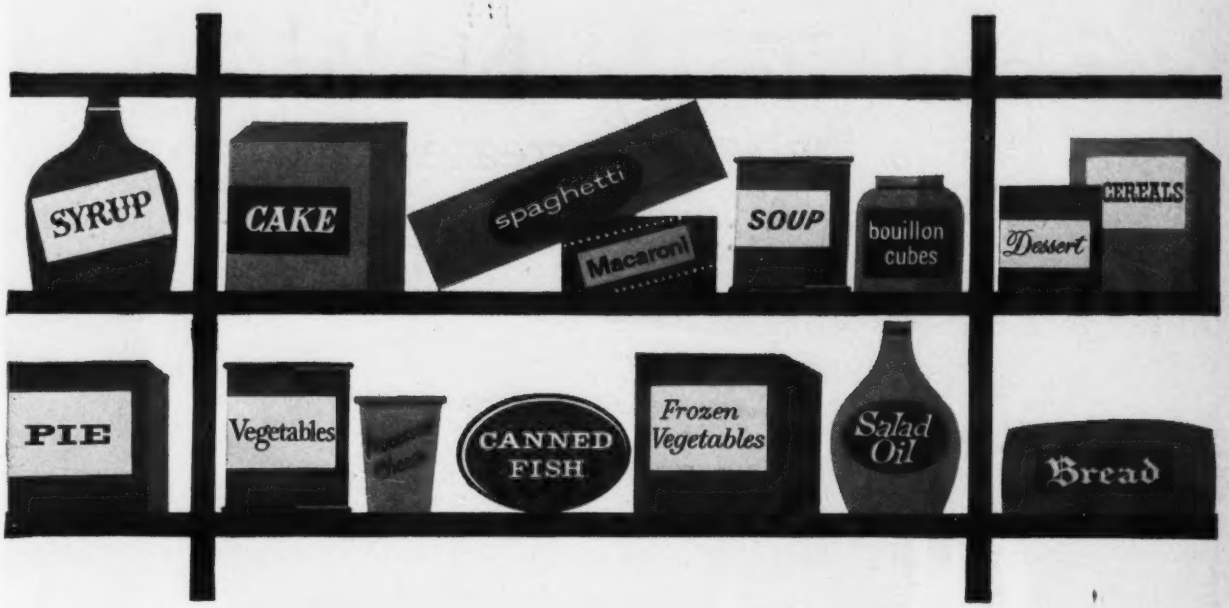
The material is licensed for use under a patent held by The Best Foods, Inc.

Potassium sorbate is commercially available in 150-pound drums, and 50- and 10-pound cartons.

Before using potassium sorbate in foods governed by Federal or State Definitions or Standards of Indentity, such use should be cleared with the appropriate regulatory body.

(*Continued on next page*)

HOW TO GIVE YOUR PRODUCT THAT "SOMETHING EXTRA"



CELLULOSE GUM

KEEP YOUR FOOD AT ITS BEST with versatile Hercules® cellulose gum (purified CMC). As a stabilizer, thickening or suspending agent, emulsifier, gel-producer or film-former, cellulose gum finds numerous applications in the food processing industry. In frozen foods, for example, cellulose gum prevents ice crystal formation. Pie fillings, cake icings, salad dressings, packaged desserts, processed cheese spreads, and many other products are improved when cellulose gum is included.

MSG

FOR EXTRA TASTE APPEAL, add MSG to almost any processed food. MSG enhances the natural flavor of a wide variety of staple foods including canned soups, meats, and vegetables; frozen specialty foods; sausages, frankfurters, and other meat products. Having no flavor of its own, monosodium glutamate helps develop the natural flavors in processed foods in addition to boosting the savor of each ingredient. MSG can be as important as salt in a well-seasoned processed food—find out for yourself what this flavor enhancer can do.

HVP

NEED DELICATE YET RICH BACKGROUND FLAVOR to add character to your table and cooking sauces, vegetable, chicken, or beef soup; or canned stews and gravies? HVP (Hercules hydrolyzed vegetable protein) with its pleasant distinctive flavor is the product to use. HVP will strengthen natural flavors as in soups, gravies or sausages; or depending on the quantity used it could become the dominant flavor as in many table sauces or bouillon cubes . . . MSG used with HVP in the same product intensifies flavor to the maximum.

VITAL WHEAT GLUTEN

ADDED NUTRITIONAL VALUE for cooked or dry cereals, spaghetti, specialty breads, and other items results when vital wheat gluten is included. A natural protein concentrate derived from nutritious wheat, vital wheat gluten improves the texture of baked products as well as adding the extra protein content that consumers appreciate.

Technical data on any of these products and their uses can be obtained by writing directly to Hercules.

HERCULES

Virginia Cellulose Department
HERCULES POWDER COMPANY
INCORPORATED
900 Market Street, Wilmington 99, Delaware

VC58-5

5027 on Reader Service Slip

SHULTON NUVAN creates a full range of vanilla effects . . . at a much lower cost than vanillin. Nuvan is a standardized mixture of Shulton Vanitrope® and Shulton Vanillin USP . . . offering up to four times the flavor strength of vanillin alone*

Both Shulton Vanitrope and Shulton Vanillin . . . blended in Nuvan under laboratory control . . . have been widely accepted—for **CHOCOLATE—BAKED GOODS—CANDY—EXTRACTS—ICE CREAM—PUDDINGS.**

Samples and technical bulletins available on request.

*Nuvan 17—*4 times the flavor strength of vanillin.* Nuvan 120—*2 times the flavor strength of vanillin.*

SHULTON FINE CHEMICALS

DIVISION OF

SHULTON, INC., 630 FIFTH AVE., NEW YORK 20, N.Y., CIRCLE 5-6263

5028 on Reader Service Slip

(Continued from preceding page)

Further information on solubility properties or samples of Sorbic (sorbic acid) or potassium sorbate may be obtained from Union Carbide Chemical Co., 30 E. 42nd St., New York 17, N.Y.

For more information circle 5029 on Reader Service Slip.

Potassium sorbate is also available from Chas. Pfizer & Co., 800 Second St., New York, N.Y.

For more information circle 5030 on Reader Service Slip.

Supplies emulsifier pre-weighed for batch

Labor required to weigh an emulsifier before applying it to dough is eliminated by use of pre-scaled units.

Packaged units of powdered emulsifier is supplied in the weight unit prescribed by the baker's formulation. Emulsifier increases bread volume and permits easier slicing.

Preactivated Emulsatin Powder provides uniform dispersion of shortening and water in yeast-raised doughs. Available in bulk as well as pre-scaled units or in 40 per cent monoglyceride plastic form, the product is manufactured by Mallet & Co., Inc., 601 E. Gen. Robinson St., Pittsburgh 12, Pa.

For more information circle 5031 on Reader Service Slip.

To license texturizer for low-cost ice cream

Available for license to manufacture is stabilizing-bodying agent for ice cream and other frozen dairy products. Stabilizer holds potency for extended period, preventing ice crystals in product.

It is especially suitable for production of low cost ice creams, making possible consistency and texture rivaling premium grades. Requires neither aging nor special mixing techniques to use.

For details on license to manufacture new dairy products stabilizer write Commonwealth Engineering Co. of Ohio, 1771 Springfield St., Dayton 3, Ohio.

Misstatement on invert sugars corrected

In the May issue of FOOD PROCESSING appears a commentary on the differences between invert sugar prepared by acid and enzyme hydrolysis.

An opinion was expressed that the two products are not necessarily identical but not significantly different, assuming reasonable care has been taken during processing to invert.

E. J. Culp, Technical Director, Operating Department of The American Sugar Refining Company agrees with this opinion. However, he calls our attention to an error appearing in the article's first paragraph.

Inadvertently, the terms of acid-converted and enzyme-converted had been transposed.

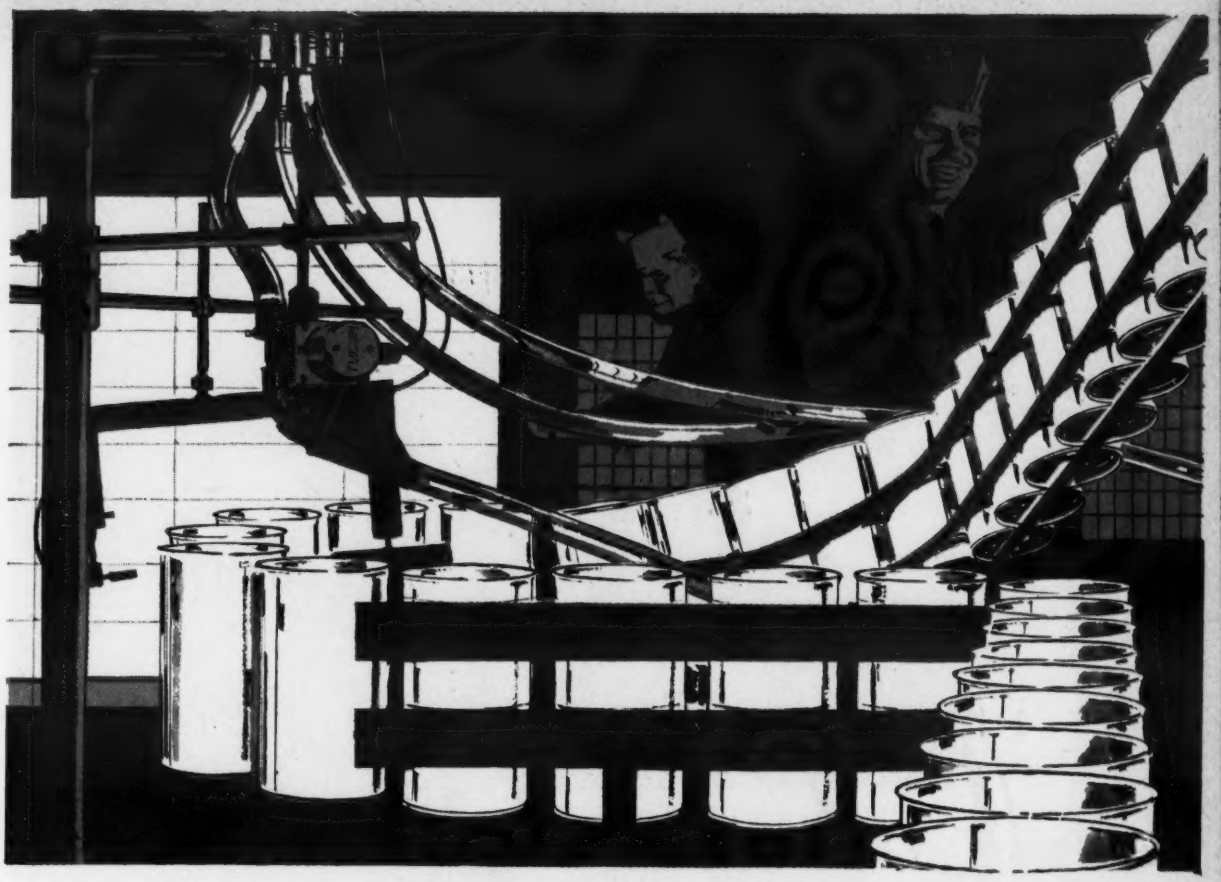
The statement should have read ". . . implies that enzyme-converted invert is nutritionally harmful, whereas acid-converted has some nutrition 'plus' value."

Optimum levels of lysine listed for wheat products

According to Chas. Pfizer & Co., Inc., recommended optimum level of L-lysine monohydrochloride in wheat products is 0.25 of one per cent based on the weight of wheat or wheat flour in the products. This amounts to 0.2 per cent L-lysine.

In bread, the recommended optimum level would be ¼ lb of L-lysine monohydrochloride for every 100 lb of wheat flour. This amount of L-lysine monohydrochloride is the optimum level and it has been shown that the addition of lesser amounts of L-lysine will significantly improve the quality of the protein in cereal products.

For instance, in bread, the addition of 0.1 per cent of L-lysine (0.125 per cent L-lysine monohydrochloride), based on weight of wheat flour used, will significantly improve the quality of its protein.



Completely new kind of dispenser!

Amazing Flocron cuts waste, saves on costly ingredients

Canners, packers and food processors who are now using the new Flocron liquid dispenser report big savings on the ingredients they use. For the Flocron avoids waste inherent in the "overflow fill" system; handles costly ingredients with money-saving speed and accuracy.

This savings is possible because the Flocron is actually a precise electronic system with photoelectric circuits to activate dispensing and assure high-speed accuracy—even on lines handling up to 300 units per minutel Easy-to-use remote electronic controls allow you to "dial" any amount of liquid you want dispensed to your lines.

Designed for efficient, low cost operation. The Flocron, made of stainless steel and plastic, is constructed to avoid costly repairs or lengthy breakdowns that can hinder your operation. There are no valves to stick or clog. The Flocron is easily cleaned by merely flushing the fluid system.

No need to revise production lines. The Flocron can be operated with existing equipment. Scientific Dispensing Company technicians are available in all areas to assist with installation and service problems.

The Flocron accurately dispenses: Brine • Hot butter • Monosodium Glutamate • Concentrated syrup • Ascorbic Acid • Brine and sugar • Spice oils • Coloring • ON • Flavors • Chicken fat • Medicinal liquids.
The Flocron liquid dispenser is offered only by the Scientific Dispensing Division of the Morton Salt Company.

Mail coupon for more information!
Please send me additional information about the Flocron liquid dispenser.

Name_____ (Please print)
Title_____
Company_____
Address_____
City_____ Zone____ State_____

Scientific Dispensing Company
Division of
MORTON SALT COMPANY
Dept. FPr 9-58
110 N. Wacker Drive
Chicago 6, Illinois

5032 on Reader Service Slip

Oil, vinegar, spice flavors—
and clear as a choice Rhine wine

You would know better than we whether there is any future in this idea.

The cruet contains 10% of water. It might have been vinegar. The rest is oil. Half of the oil is the usual triglyceride salad oil. The other half of the oil is distilled monoglyceride. It is equally wholesome food. The monoglyceride dissolves both the conventional salad oil and the water. This clear, uniform, stable solution can carry both oil-soluble and water-soluble condiments and flavor extracts.

It would be interesting to experiment with other ratios of triglyceride to monoglyceride. This is for food processors to do, not for us. Our business is making Myverol® Distilled Monoglycerides so pure they can give this effect. We shall be delighted to supply food processing firms with free samples for their experiments. ***Distillation Products Industries,*** Rochester 3, N. Y. Sales offices: New York, Chicago, and Memphis • W. M. Gillies, Inc., West Coast • Charles Albert Smith Limited, Montreal and Toronto.

distillers of
monoglycerides made from natural fats and oils

DPi

Also . . . vitamin A in bulk
for foods
and pharmaceuticals

Distillation Products Industries *is a division of* **Eastman Kodak Company**

5033 on Reader Service Slip

ingredients

Control bacteria in fish processing

Lemon juice will markedly control bacterial action in seafoods, prevent off odors from developing, control proteolytic activity, and contribute to firmness of fish and seafoods.

One difficulty in applying these advantages in past has been inability to furnish a constant strength solution to the seafood flesh. Overtreatment results in a bleaching effect on flesh.

On other hand, buffering effect of fish solubles when fish is dipped in solution changes protective characteristics. These are engineering problems which have been studied and reported in 8-page bulletin.

Three methods of application are recommended for specific seafood products. Each is described and flow diagram is shown for each.

Spraying of highly atomized lemon juice solution is recommended for fish fillets, shrimp and lobster. Combination pressure spray and dip is shown for ice glazing of fish steaks or other seafood.

Dipping of frozen fish portions (steaks, sticks, or fillets) for ice glazing, or for certain cooked seafoods is used in system adapted for frequent change of lemon juice solution.

Bulletin number 468, "The Treatment of Sea Food with Lemon Juice," is issued by Industry Sales Div., Sunkist Growers, Ontario, Calif.

For your copy simply circle 5034 on Reader Service Slip.

Improve product quality of jams and jellies

Basic formulas for jelly, jams or preserves, apple butter and orange marmalade are offered in a 14-page bulletin.

Bulletin discusses use of corn sirup as a sweetener ingredient to improve quality of jams, jellies, preserves and fruit butters.

Among advantages cited are prevention of sugar crystallization, improvement of tex-

ture and smoothness and better color retention.

Corn sirups may be used in jellies, jams, preserves and fruit butters in amounts replacing up to 25 per cent (solids basis) of total sweetener as authorized by Federal standards.

Proportions often as high as 50 per cent are used in marmalades.

Bulletin also includes information on gel formation and a discussion of pH adjustment for proper gels.

"Corn Syrup in Jams, Jellies and Preserves", Technical Service Bulletin No. 1D1a, is available from Clinton Corn Processing Co., Clinton, Iowa.

For more information circle 5035 on Reader Service Slip.

Stabilizes fish meal

- eliminates bulk curing
- immediate bagging
- reduces vitamin losses

Comprehensive technical bulletin describes use of BHT (butylated hydroxytoluene) antioxidant with immediate milling and cooling to stabilize fish meal.

Benefits, methods of applying, problems and analytical methods for determining BHT in fish meal are discussed.

Ten-page product data bulletin, "Dalpac FG95," is issued by Hercules Powder Co., Wilmington 99, Delaware.

For your copy simply circle 5036 on Reader Service Slip.

Describes two strengths of liquid tenderizers

Two strengths of liquid meat tenderizers are described in 8-page fold-out brochure. High potency type is used for thinner cuts such as steaks and chops. Slower acting type used for larger cuts, roasts, poultry, lobster tails.

Brochure on meat tenderizers is issued by Custom Food Products, Inc., 701 N. Western Ave., Chicago 12, Ill.

For your copy simply circle 5037 on Reader Service Slip.

NOTHING SELLS LIKE FLAVOR!

There's no secret as to what makes confections, soft drinks, instant desserts and other prepared food products sell and sell and *sell.* Our caption tells the story: NOTHING SELLS LIKE FLAVOR! The most successful brand named products are those whose labels identify them instantly as items of top quality and superior flavor. This is a point for manufacturers to remember when working out their new-product formulations: if flavors or flavoring additives are needed—choose only those known reliably to be the best. You can always be certain of flavor quality, uniformity and dependability by using FRITZSCHE'S... *A FIRST NAME IN FLAVORS SINCE 1871.*

FRITZSCHE BROTHERS, INC., 76 NINTH AVENUE, NEW YORK 11, N.Y.

A FIRST NAME IN FLAVORS SINCE 1871

Branch Offices and *Stocks: Atlanta, Ga., Boston, Mass., *Chicago, Ill., Cincinnati, Ohio, Greensboro, N. C., *Los Angeles, Cal., Philadelphia, Pa., San Francisco, Cal., St. Louis, Mo., Montreal and *Toronto, Canada; *Mexico, D. F. and *Buenos Aires, Argentina. Factories: Clifton, N. J., and Buenos Aires, Argentina.

5038 on Reader Service Slip

ingredients

Better shrimp products with lemon juice

Lemon juice markedly inhibits the growth of microorganisms in shrimp batter, lab tests show. In addition, it retards proteolytic breakdown which produces darkening and off odors.

Sequestering activity in suppressing effects of iron and copper, and natural antioxidant content also aid in making better shrimp products.

Test results with shrimp products and recommendations for use are given in two brochures.

Brochures, No. 481, "Lemon Juice Retards Bacterial Growth in Shrimp Batter," and No. 478, "Fresher and Better Shrimp," are issued by Industry Sales Div., Sunkist Growers, Ontario, Calif.

For your copy simply circle 5039 on Reader Service Slip.

Marshmallows for air-conditioned stores

Last fall, a big manufacturer of hardened marshmallow candy (the kind usually shaped like peanuts, in poly bags) suddenly became aware of fall-off of sales in air-conditioned stores.

They discovered that their candies were becoming hard —really hard—and weren't passing the "squeeze" test which customers used as guide to freshness. Low humidity from air conditioning was traced as the cause.

Lab tests showed that grained marshmallow candies made with sorbitol, and stored in polyethylene bags at 50% relative humidity and 75°F for 6 months, were softer and more palatable than regular type without sorbitol.

Taste panel preferred the sorbitol-made candies. Candies also resisted sticking together.

"Sorbo" food product bulletin No. 8, with guide recipe for grained marshmallows, is issued by Atlas Powder Co., Chemical Div., Wilmington 99, Delaware.

For your copy simply circle 5040 on Reader Service Slip.

Here's what Flo-Sweet

Today, with more and more food manufacturers looking for new ways to cut costs and improve quality, "Research & Development" activities are helping many companies set new records. Here is a status report on a number of Flo-Sweet R&D projects which may hold valuable information for you.

When you hear the words "research and development" you are likely to think of a Hollywood science fiction setting: laboratories crowded with gleaming glassware, white-smocked technicians peering earnestly into test tubes and microscopes, sensitive fingers manipulating the delicate controls of complicated instruments. Places like this really do exist; and one of them is the well equipped and competently staffed Flo-Sweet laboratory at our headquarters and refinery in Yonkers.

Why do we maintain such a comprehensive laboratory?

The answer is simple: to give *you,* the food manufacturer, new and better sugars to help you improve your products so that you can keep ahead of your competition.

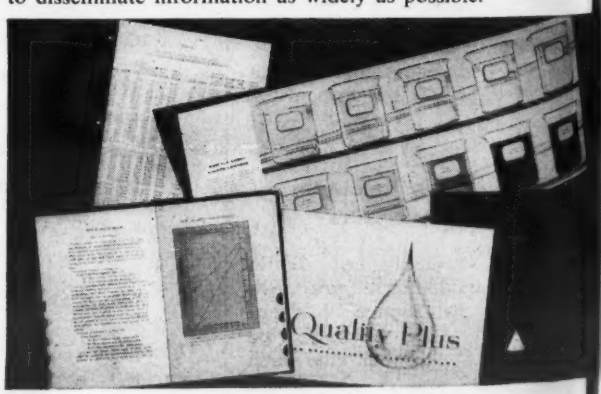
New Ideas Galore

From the very conception of the liquid sugar idea, which Refined Syrups pioneered, down to today's exciting developments in blends and Multi-Sugars, Flo-Sweet research and development have brought you a host of advances that have helped you cut your costs, increase your production, and improve your quality. For example:

Flo-Sweet was first to deliver liquid sugar on a bulk commercial basis, first to establish complete engineering service in design and installation of liquid sugar systems, first to formulate liquid sugars tailored to customer specifications. Flo-Sweet was first to develop food product quality control through use of liquid sugar, first to devise means of preventing surface dilution of liquid sugar in storage, first to develop effective means of controlling the temperature of liquid sugar going into production.

More recently, Flo-Sweet was first to come to grips with the problem of measuring turbidity, evaluating it, and controlling it to establish, in effect, new high standards of purity for the entire beverage industry. Flo-Sweet was first to conduct basic research into colors of sugar solutions and their correlations with refinery efficiency and resulting sugar purity. And Flo-Sweet was first in the entire sugar industry to publish an authoritative handbook on liquid sugar–

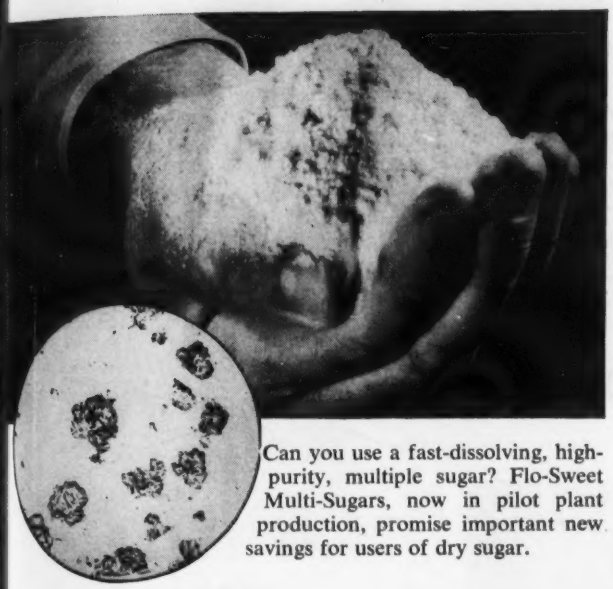
Flo-Sweet research has helped customers solve many problems. Factual reports, technical papers, illustrated brochures, and an authoritative handbook have been published to disseminate information as widely as possible.



FLO-SWEET®
FIRST IN LIQUID SUGAR

REFINED SYRUPS
SERVING INDUSTRIAL SUGAR

"R & D" means to you



Can you use a fast-dissolving, high-purity, multiple sugar? Flo-Sweet Multi-Sugars, now in pilot plant production, promise important new savings for users of dry sugar.

making freely available, to customers and competitors alike, the factual results of thoroughgoing research painstakingly carried on through the years.

What Next?

In recent months, our customers in the metropolitan New York area have been enjoying the advantages of Flo-Sweet Sucrodex—a whole new family of sucrose-dextrose liquid sugars formulated to meet individual requirements. These Sucrodex sugars are Comogenized at our refinery to provide the utmost in uniformity. The enthusiastic reception that Sucrodex has received obviously suggests enlargement of the areas in which it is available.

As an adjunct to Sucrodex, plans are well under way for a line of companion products combining invert and dextrose sugars. We have kept this project "under wraps" for many months; and our research is now far enough along so that we can promise you rapid progress on this new group of sugars.

Possibly our most exciting research project hinges around our concept of Multi-Sugars—dry sugars consisting of different sugars interlocked in inseparable crystalline form. The Multi-Sugars so far developed are light, almost fluffy; are very fast dissolving; form clear, colorless solutions; make brilliant, white icings; and offer a number of other very attractive features. You will be hearing much more about Flo-Sweet Multi-Sugars!

Where You Fit In

All Flo-Sweet research, you will note, is directed toward helping *you,* the food product manufacturer. This research, our advertising, our own sales and sales engineering efforts are all directed toward *you.* This is to keep you well informed, to help you take full advantage of the many services we provide, to help you boost your own product quality and value to the utmost.

For the Flo-Sweet R&D laboratories are staffed not only with sugar experts, but with specialists in the many food industries as well. We are primarily food technologists – equipped and organized to handle *your* problems in food processing. In R&D as well as in production and sales, we have long followed the policy of serving industrial sugar users exclusively. In a word, this means serving *you.*

Frederic A. Davidson

Frederic A. Davidson
President

& SUGARS, INC. YONKERS, NEW YORK

USERS EXCLUSIVELY FROM YONKERS, ALLENTOWN, DETROIT, TOLEDO

5041 on Reader Service Slip

Pastry jellies spread like butter

- require no pre-mixing
- machine or hand applied
- will not separate or weep

Texturated pure apple raspberry jelly and texturated pastry spread, two new jellies for use in baked goods offer increased spreadability.

Applicable by hand or machine the jellies are produced by a special texturation process. They spread like butter and need not be piled on rolls or cakes.

Featuring uniform color and texture, the jellies do not weep after application. They do not appear gelatinous, contain no lumps and will not harden.

Max Ams Texturated Jellies are products of the Max Ams Co., 601 E. Gen. Robinson St., Pittsburgh 12, Pa.

For more information circle 5042 on Reader Service Slip.

Lists kosher approved dry and liquid flavors

Flavors, dry and liquid, approved by Orthodox Union of Jewish Congregations of New York, Inc., are listed in eight page catalog.

Included in list are essential oils, concentrated citrus oils, oleoresins, flavor bases, dry soluble seasonings and spices and spray dried or locked-in products.

Catalog of kosher approved products is issued by Dodge & Olcott, Inc., 180 Varick St., New York 14, N.Y.

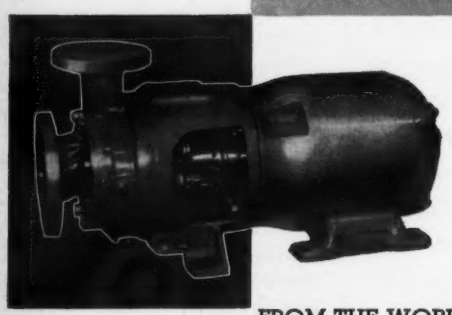
For your copy simply circle 5043 on Reader Service Slip.

'Old world flavor'

Lipase enzyme preparations, used for flavor development and body and texture improvement in Italian type cheese, are described in 6-pg folder issued by Dairyland Food Laboratories, Inc., 419 Frederick Street, Waukesha, Wisconsin.

For your copy simply circle 5044 on Reader Service Slip.

better pump design cuts operating costs



Ingersoll-Rand
MOTORPUMP

From ¼ to 75 horsepower

Sidewall mounted Motorpump

Immersion type Motorpump

FROM THE WORLD'S LARGEST manufacturer of centrifugal pumps, modern Motorpumps come to you with time-tested features that assure continuous, year-after-year savings.

- *easy installation*—Motorpumps operate in any position—no special foundation is required.
- *the widest range* of sizes and types available.
- *mounting versatility*—immersion, sidewall or foot mounted types available.
- *low operating cost*—minimum downtime and minimum maintenance assured through advanced design and manufacturing.
- *rugged durability*—heavy-duty construction to stand up in the most severe service.

Complete specifications and performance data are available at your request.

Ingersoll-Rand

9-822

11 Broadway, New York 4, N.Y.

5045 on Reader Service Slip

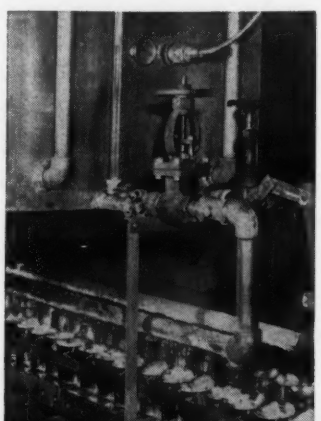
fp SANITATION & MAINTENANCE

Maintenance free for 12 years . . .

. . . Monel valve regulates 180°F brine continuously

Shrimp, processed at a rate of three cans per second, receive a brine bath at 180°F at the Robinson Canning Company of New Orleans.

Control for the brine delivery is a one inch Monel gate valve having outside screw and yoke, bolted bonnet and screwed ends. Valve is part of the gravity feed system terminal to the elevated brine storage and generating units. It handles 2500 gallons of brine per day.



Adjustable seating surface lessens galling tendency

Only valve maintenance required in the past 12 years, since its substitution for a copper valve which leaked from brine corrosion, has been recent replacement of the non-Monel handwheel, packing flange and eye bolts.

Valve is designed for 150-pound service and incorporates adjustable ball and socket-type disks to adjust seating surface.

Oversize packing of blue African asbestos finished with mica provides maximum leakage protection.

Monel valve is manufactured by the Cooper Alloy Corp., Hillside, New Jersey.

For more information circle 5046 on Reader Service Slip.

SANITILE your WALLS with PENNIES

For only a few cents per square foot you can have the sanitary advantages of tiled walls. Sanitile meets requirements for smooth, washable, sanitary surfaces on cement block, brick, plaster and composition board. Thousands of North American food plants rely on gleaming ceramic-like Sanitile to resist the most difficult conditions of steam, grease, blood, food acids and mold. Easily applied by plant personnel with brush or spray. Learn how you can Sanitile your plant at less than 1/15th the cost of tile. Write for specifications based on forty-five years specialization in the food industry.

Serving the Food Industry since 1913

MASTER MECHANICS

THE MASTER MECHANICS COMPANY
2097 Columbus Road • Cleveland 13, Ohio
The Master Mechanics Chemicals Co., (Canada) Ltd.

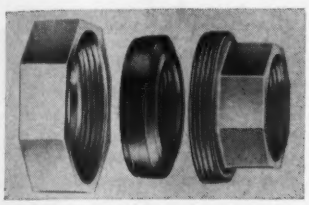
5047 on Reader Service Slip

Adapter broadens use of plastic pipe

- **No clamp needed to connect to metal pipe**
- **Fusion method gives premanent plastic-to-plastic joint**

Adapter has been devised to furnish a good mechanical seal between polyethylene fittings or pipe to existing metal pipe and fittings, without using customary clamps.

Plastic-to-metal adapter (see photo) consists of polyethylene gasket (threaded to



Gasket (center) has interior threads to fit OD threads of polyethylene pipe and fittings. Tailpiece (right) has threads to fit metal pipe

fit plastic pipe) between two metal parts (nut and tailpiece).

Join plastic pipes in minutes

Permanent joints between polyethylene fittings and pipes can be made with special tool and standard 300 w heating iron. Fusion between parts is possible in a few minutes.

Tool, which is round to fit into pipe, is heated to 250°F. One end of tool is inserted into OD of pipe, other end into ID of fitting.

When melting of plastic is noticed, tool is removed and pipe is immediately inserted into fitting.

In one hour joint is ready for use. Connection forms a homogeneous mass of polyethylene. Experience has shown that pipe breaks before joint shows any cracking.

Plastic-to-metal adapter and tools for "Polyfusion" method of connecting plastic pipe are available from American Vulcathene Div., Nalge Co., Inc., 625 S. Goodman St., Rochester 2, N.Y.

For more information circle 5048 on Reader Service Slip.

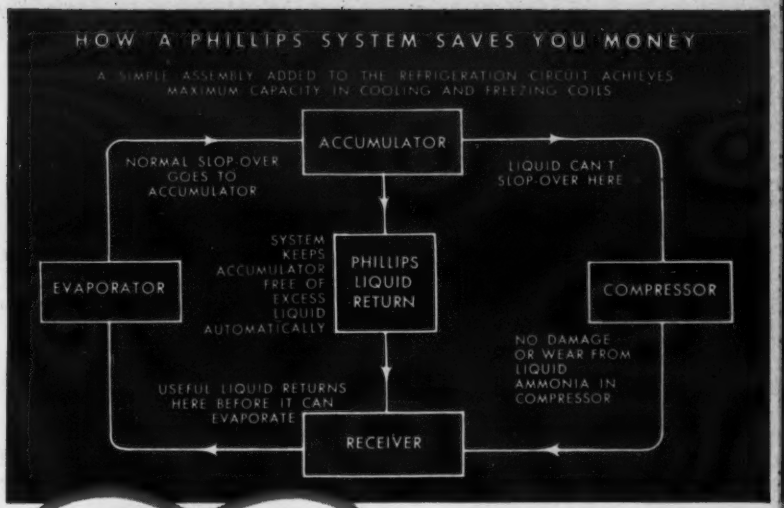
"SLOP-OVER" is **not** a necessary evil

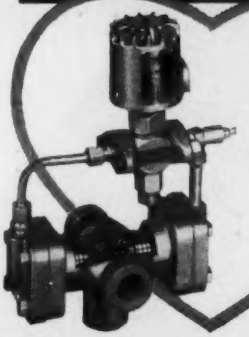
A PHILLIPS Liquid Ammonia Return System Will Protect Your Refrigeration Plant Automatically by Putting Slop-Over Where It Belongs — In the Receiver

A PHILLIPS Liquid Ammonia Return System gets liquid "slop-over" out of the accumulator in a refrigeration system almost as fast as the liquid arrives. The Phillips system sends the liquid back to the receiver quickly and automatically. Plant efficiency is increased, compressors are protected from wear and damage; operator time is saved; maintenance is decreased.

The Phillips system provides an extra dividend by speeding defrosting—it permits liquid to be drained quickly from coils to other parts of the system, to be just as quickly returned after defrosting.

Several types of systems are available, for gravity, injection-lift and pressure-lift operation in sizes up to 1,000 tons. Let a Phillips engineer help you select the right system. Send for Bulletin LRS-56.


HOW A PHILLIPS SYSTEM SAVES YOU MONEY
A SIMPLE ASSEMBLY ADDED TO THE REFRIGERATION CIRCUIT ACHIEVES MAXIMUM CAPACITY IN COOLING AND FREEZING COILS
ACCUMULATOR
NORMAL SLOP-OVER GOES TO ACCUMULATOR
LIQUID CAN'T SLOP-OVER HERE
SYSTEM KEEPS ACCUMULATOR FREE OF EXCESS LIQUID AUTOMATICALLY
PHILLIPS LIQUID RETURN
EVAPORATOR
COMPRESSOR
NO DAMAGE OR WEAR FROM LIQUID AMMONIA IN COMPRESSOR
USEFUL LIQUID RETURNS HERE BEFORE IT CAN EVAPORATE
RECEIVER



THE HEART OF THE SYSTEM

This three-way valve, the heart of the Phillips system, helps keep it simple. The three-way valve teams up with the check valves and dump trap to keep liquid level down in the accumulator: The valve opens the line between the accumulator and Phillips liquid dump trap, to drain the accumulator; then lets high-side pressure through to empty the trap into the receiver. Process repeats automatically, as required.

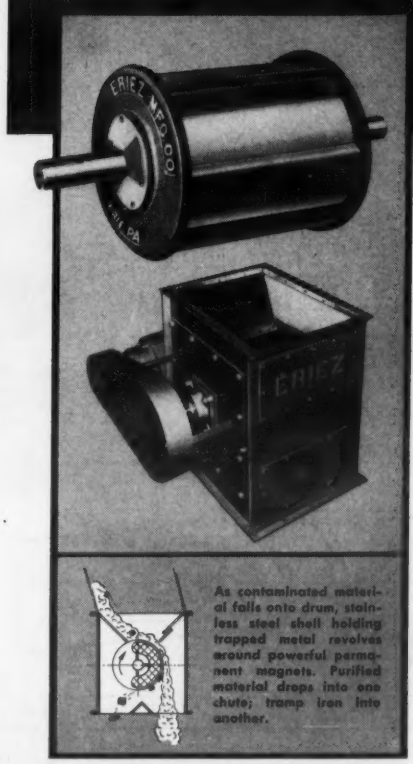
PHILLIPS FLOAT CONTROLS

H. A. PHILLIPS & CO.
DESIGNERS AND ENGINEERS
REFRIGERATION CONTROL SYSTEMS
3255 W. Carroll Ave.
Chicago 24, Illinois

5049 on Reader Service Slip

Get increased protection...new ERIEZ MAGNETIC DRUMS

now up to 50% stronger than old-style drums!



As contaminated material falls onto drum, stainless steel shell holding trapped metal revolves around powerful permanent magnets. Purified material drops into one chute; tramp iron into another.

Costly maintenance problems eliminated with new replaceable Shell and Bearings! Expanded, improved line of permanent magnetic drums invaluable for automatic continuous removal of ferrous contamination from foods, chemicals, grains, plastics, ceramics, rubber, etc.

Stronger, larger, more efficient magnetic elements provide more magnetic power, better protection than ever before possible! New magnetic units trap and remove small and medium iron fines as well as heavier pieces of tramp metal from processing lines. Protect machinery, prevent fires and explosions, eliminate product contamination. Quickly, easily installed at discharge end of gravity flow chutes, spouts, screw conveyors, etc. For wet or dry materials. With or without housings. Peak protection at low cost.

NEW, TIME AND MONEY SAVING FEATURES! *Easy drum removal;* no need to remove housing. *Bearing replacement simplified;* no disassembly of shell required. *Replaceable shell;* excellent for abrasive applications. Stainless steel shell construction won't pit or corrode. *Dust-tight housing;* all steel, welded construction. *Adjustable magnetic element;* magnetic area can be moved to insure peak efficiency for varying sizes of ferrous contamination. *Lifetime guaranteed permanent magnets;* can't fail or burn out. *Continuous efficiency;* unaffected by external conditions. *Wide range of sizes;* standard diameters of 12", 15", & 18". 24" heavy duty diameter. 10 standard widths.

Eriez, pioneer and world's leading producer of magnetic equipment, builds a complete line of separation, vibration and automation units. Our skilled field and lab staffs are always ready to help solve a problem.

For literature or information, write Eriez Mfg. Co., 75JA Magnet Drive, Erie, Pa.

Magnetic SEPARATION AUTOMATION VIBRATION Equipment

ERIEZ HI-POWR MAGNETIC SEPARATORS

ERIEZ

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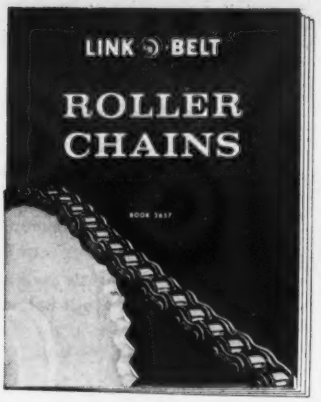
NEW roller chain engineering data book



154-pages of application information, engineering data . . . sectionalized for easiest use

Not just another catalog, but an entirely new engineering handbook — the most comprehensive, easiest-to-use yet published on design and application of modern roller chain and sprockets.

Contains full data on the complete Link-Belt line of roller chain for both power transmission and conveyors . . . helpful application facts . . . new designs. Mail the coupon below for your free copy.

LINK-BELT

ROLLER CHAIN AND SPROCKETS

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants, Sales Offices, Stock Carrying Factory Branch Stores and Distributors in All Principal Cities. Export Office, New York 7; Australia, Marrickville (Sydney); Brazil, Sao Paulo; Canada, Scarboro (Toronto 13); South Africa, Springs. Representatives Throughout the World.

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Dept. RC, Prudential Plaza, Chicago 1, Ill.
Please send me a copy of the new Link-Belt Roller Chain Book 2657.

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Firm_____

Address_____

14,963

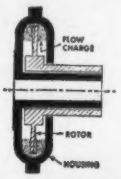
5051 on Reader Service Slip

sanitation

Cushions start-up of small motors

Uses: Dry fluid drive for fractional hp motors.

Features: Offers cushioned starting, 100 per cent efficiency at full load, and protection against overload of light machines subject to jam-ups, or to allow small motors to handle heavy starting loads.



Steel shot and centrifugal force = dry fluid drive

Description: Designed for ¼ to ¾ hp motors at 1750 rpm. Independent housing and rotor are locked together through centrifugal action of steel shot in housing when machine is operating.

Flexidyne Dry Fluid Drives and Couplings are manufactured by Dodge Mfg. Corp., Mishawaka, Ind.

For more information circle 5052 on Reader Service Slip.

Controls scale, pH, in recirculated water

Compound to prevent build-up of slime, algae, scale and corrosion in air conditioning, humidifying and heat exchange equipment has been successfully field tested.

Used in concentrations of two to four pounds per 1000 gallons of water, compound keeps pH of water in low alkaline range and minimizes delignification of wooden cooling towers and deposits of white coatings on equipment.

Material is completely soluble in hot or cold water, is unaffected by heat and is not toxic in recommended concentrations.

Oakite Airefiner No. 54 is product of Oakite Products, Inc., 19 Rector St., New York 6, New York.

For more information circle 5053 on Reader Service Slip.

Plastic gloves reuseable, disposable

Features-Description: Industrial gloves are packaged in rolls of 12 to 1000 of 1¾ mil polyethylene.

Plastic is strong enough for reuse. In rolls of 1000, cost is about 3c per glove — cheap enough to be disposable.

Polyethylene resists acids, dyes, solvents and most chemicals, has been cleared for use with radioactive materials by University of California Radiation Laboratory.

Gloves in rolls offer convenience and low cost

Improved ventilation results from flaring at wrist. Glove may be sealed with rubber band if hand must be immersed. Pre-talcuming plastic sheets, which are heat sealed to form glove shape, makes gloves slide on and off hand easily.

Gloves are available in three sizes: small, medium and large. Finger puckering normally resulting from use of rubber gloves is usually eliminated. Sense of touch is not impaired.

Handgards are manufactured by Plasticsmith, Inc., Box 415, Concord, Calif.

For more information circle 5054 on Reader Service Slip.

The Yarway Impulse* steam trap is the only steam trap that continually senses condensate conditions in the line ahead of the trap, and discharges this condensate as soon as it forms.

Result—higher temperatures, steadier temperatures, peak operation of steam heated equipment at all times.

* A COMPLETE LINE OF STEAM TRAPS, ALL OPERATING ON A PROVEN THERMODYNAMIC PRINCIPLE

Actual size, ¾" trap

YARWAY impulse®

Manufactured by YARNALL-WARING CO., 126 Mermaid Avenue, Philadelphia 18, Pa.
Stocked and sold by 270 Industrial Distributors.
Write for free bulletin "The Why and How of Steam Trapping."

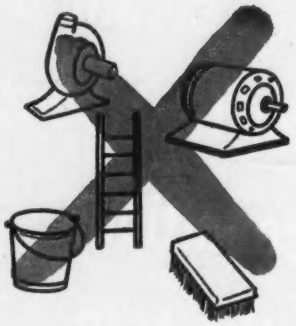
5055 on Reader Service Slip

Replace them all

pumps, motors

ladders

buckets, brushes



and clean up faster with the new Oakite SANISEPTOR

So much faster that a brewery reports the unit paying for itself in one day's use...a meat packer figures each hour's use of the Oakite SANISEPTOR saves him $1.60...a food packer states his maintenance cleaning time has been cut "just about in half."

Not only faster, but better, too, because the cleansing jet-stream from the Oakite SANISEPTOR can reach places where brushes and mops can't – way up, behind and under equipment, in narrow crevices and tight corners.

Mechanized cleaning couldn't be simpler. Just load the SANISEPTOR with Oakite detergent, connect to any hot-water outlet and turn a valve. You get a jet of hot detergent solution to knock loose the toughest soils. Turn another valve to rinse. No pump, motor or steam supply needed because the Oakite SANISEPTOR operates on your own line pressure. Weighs only 25 lbs., stands only 21 inches high, easily portable from job to job. Use it everywhere – on conveyors, holding tanks, vats, equipment, floors, walls. For more details, write to Oakite Products, Inc., 26G Rector Street, New York 6, N.Y.

SPECIALIZED INDUSTRIAL CLEANING

OAKITE

MATERIALS · METHODS · SERVICE

SCIENCE

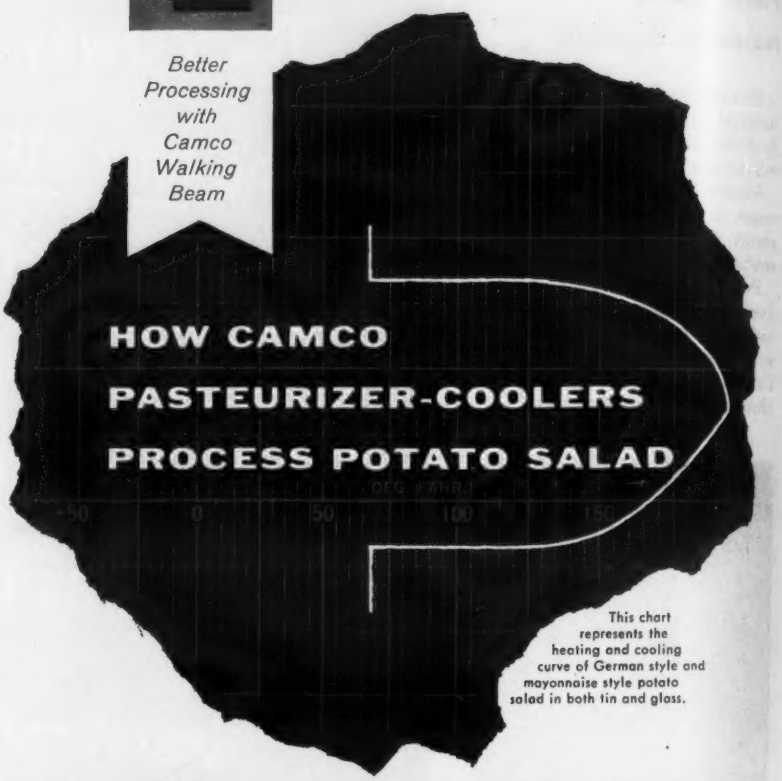
Export Division Cable Address: Oakite

Technical Service Representatives in Principal Cities of U. S. and Canada

5056 on Reader Service Slip

Better Processing with Camco Walking Beam

HOW CAMCO PASTEURIZER-COOLERS PROCESS POTATO SALAD

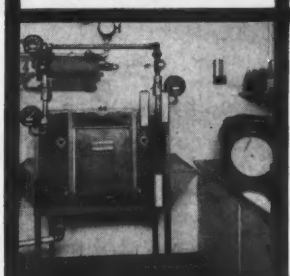


This chart represents the heating and cooling curve of German style and mayonnaise style potato salad in both tin and glass.

A prominent midwestern packer had become discouraged in his attempts to process fresh potato salad. Quick and complete pasteurization was necessary to avoid separation of oils and loss of taste. Camco's claim that it could be done was proved conclusively in the Camco laboratory. With Camco Walking Beam equipment, this packer now produces a product of excellent quality. Let us prove what Camco equipment can do for you: *for information on processing your product, phone or wire collect . . . today!*

Camco Laboratory accurately predicts actual performance

Camco Equipment Available on Lease Option or "Pay as You Depreciate" Plan



CAMCO Sales CANNING MACHINERY DIVISION
5105 S. W. 45th Portland 1, Oregon

Telephone CHerry 4-7560

Walking Beam and Roll-Thru Processing Equipment

5057 on Reader Service Slip

Self-lubricating bearing material

- Highly wear resistant
- Low friction between −328, +536°F

Uses-Features: Wear resistance up to 100 times greater than conventional dry bearing materials. Exhibits high thermal conductivity, low thermal expansion, compressive strength up to 23 tons per square inch. Capable of operation between temperatures of minus 328 and plus 536°F.

Dry bearing material can be fabricated in various shapes

Description: Available in strip form in a range of thicknesses, the bearing material known as DU, can be used to wrap bushings, cut thrust bearings, or for pressing hemispherical bearings.

It consists of spherical bronze, impregnated with a mixture of tetrafluoroethylene (TFE) and 20 per cent lead. Bronze is sintered to steel backing. Sponge like network of TFE-lead and bronze results in low friction material having no slip-stick characteristics.

DU is a development of the Glacier Metal Co., Ltd. of England and is available in the US by patent licensing arrangement through United States Gasket Co., 602 N. 10th St., Camden 1, New Jersey.

For more information circle 5058 on Reader Service Slip.

3rd Inst. of Sanitation Management Show, November 3-6 moved to N.Y.C. Details in October, Food Processing

Simplicity in steam traps can effect big savings in parts inventory and maintenance time

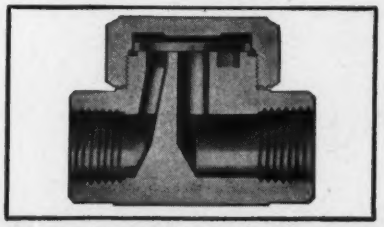
by John W. Ritter, Test Engineer
SARCO Company, Inc.

The function of all steam traps is to release condensate and prevent steam loss. However, the method of trapping can make a great difference in cost and effectiveness.

In the Sarco Thermo-Dynamic Steam Trap, the method is fundamental. Air or condensate entering the trap must flow from the inlet tube, radially across the underside of the disc valve, to the outlet. The space between the inlet tube and the disc forms a nozzle in which the static pressure energy of the incoming fluid is partly changed to velocity across the underside of the disc, with a resultant *decrease* in pressure. (This will be recognized, of course, as the Bernoulli Principle.) Use of this fundamental method means reliability in operation.

As the high velocity fluid jet strikes the side of the upper chamber, some recompression takes place, so that the pressure above the disc becomes greater than the pressure below it. The pressure reduction under the disc and the pressure recovery above it depend on the internal energy of the fluid. As the condensate above nearly approaches steam temperature, its internal energy is enough to overcome the upward force at the inlet tube and the disc snaps down in the inlet tube, which is the inlet valve seat.

Simultaneously, the disc also seals the outer ring, which isolates the space above the disc from the outlet. The disc valve is therefore held firmly against the inlet valve seat until the pressure in the control chamber is reduced by condensation. The upward force then exceeds the downward force and the disc valve opens.



This 3-part Sarco TD Steam Trap has only one moving part—the hardened, polished stainless steel disc.

No other trap uses the velocity of the fluid to operate the valve or uses the recompression of the flowing fluid to trap the valve closed and to hold it closed. When it closes, it closes tightly — no "operating steam" leaks out.

40 seconds inspection time— that's all it takes for a SARCO TD Steam Trap

Just back off the cap of a Sarco TD. Lift out its single moving part, the stainless steel disc. Wipe it off, and drop it back. No adjustment is ever required, at any load or any pressure in its range — from 10 through 600 psi.

The TD operates in any position, won't blow steam at any load. Small as a tee fitting, it can be installed in tight places. Its versatility and reliability cut cost of big replacement inventory.

Write for "Literature Kit 2A" today and get latest bulletins on the TD Steam Trap and other Sarco steam traps. Remember that Sarco can give you impartial advice on *Production Planned steam trapping* because . . .

5605-B

SARCO
COMPANY, INC.
635 Madison Ave., New York 22, N. Y.

Only Sarco makes all 5 types:
Thermostatic • Liquid Expansion • Float Thermostatic
Thermo-Dynamic • Bucket

STEAM TRAPS • TEMPERATURE CONTROLLERS • STRAINERS • HEATING SPECIALTIES

5059 on Reader Service Slip

Detects small cracks in metals, coatings

Dye penetrant is applied to surface of metal, plastics, ceramics, other non-porous solids to detect small cracks due to corrosion, fatigue or other damage.

Available in pressure-spray cans or bulk, inspection material now comes in nonflammable formula or water-wash formula for quick removal after surface inspection.

Four-page catalog folder on Magnaflux Spotcheck penetrant is issued by Magnaflux Corp., 7307 West Ainslie Ave., Chicago 31, Illinois.

For your copy simply circle 5060 on Reader Service Slip.

Vacuum sterilization facilities

Recent installation and results of testing on a food industry service for processors requiring low bacteria counts without high processing temperatures are announced in 4-page booklet, "Something New Has Been Added."

The largest and newest vacuum sterilizing chamber on the West Coast is installed at Chili Products Corp., Ltd., 1841 E. 50th St. at Alameda St., Los Angeles, Calif. Processing chamber is available to interested firms in the Los Angeles area on a custom basis.

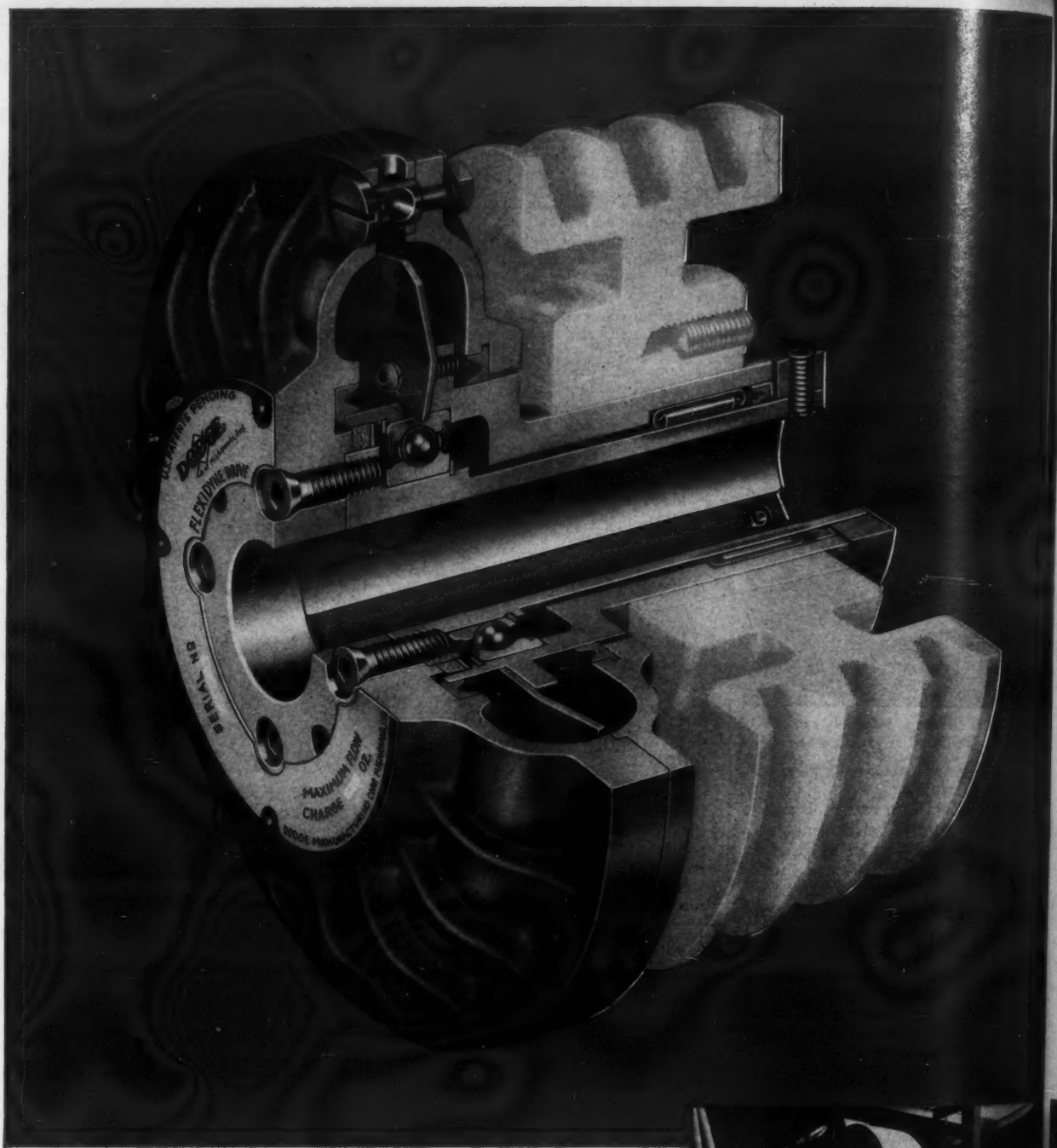
For your copy simply circle 5061 on Reader Service Slip.

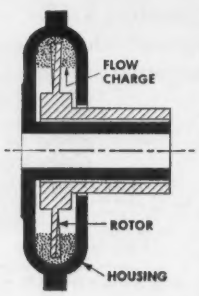
Wall chart shows pipe specifications

A 17" x 22" wall chart shows all essential pipe-specification information on wall thickness, weight and OD of seamless and welded steel pipe under ASA schedules ⅛-24".

Chart will be sent to any pipe user upon request written on company letterhead. Write Merwin Abrams, Midcontinent Tube Service, Inc., 2120 Lee St., Evanston, Ill.

For your copy simply circle 5062 on Reader Service Slip.





HOW FLEXIDYNE WORKS

The "dry fluid" in Flexidyne is tiny heat-treated steel shot. A measured amount, called the "flow charge," is contained in the housing, which is keyed to the motor shaft. Inside the housing is a rotor, free to revolve relative to the housing, but connected to the load.

When the motor is started, centrifugal force throws the flow charge to the perimeter of the housing, packing it between the housing and the rotor, which transmits power to the load. Initial slippage is momentary. Housing and rotor become locked together and achieve full load speed without slip and at 100% efficiency.

Overloads on a 150 hp jaw crusher cause sudden damage. Here Flexidyne is used to minimize this costly trouble. As a bonus, it reduces belt wear and replacement.

FLEXIDYNE

THE DRY FLUID DRIVE

OFFERS A NEW APPROACH TO DIFFICULT DRIVE PROBLEMS...OPENS THE WAY TO MULTIPLE SAVINGS!

IT IS NO LONGER NECESSARY to accept the destructiveness—the costliness — of conventional starting in the mechanical transmission of power! Flexidyne changes that.

LOOK AT YOUR DRIVES! Are you using expensive oversize or high torque motors merely to get your loads started? Are you using expensive starting equipment? Are you tolerating high demand rate? Are your belt maintenance costs high, because of the shock of across-the-line starting?

HOW ABOUT THE MATERIAL YOU PROCESS—wire, paper, textiles? Is your output hampered by breakages that you accept as "normal production"? Do you burn up clutches in getting your loads up to speed?

FLEXIDYNE—THE DRY-FLUID DRIVE—solves these problems—and many more! Flexidyne is revolutionary. *And so simple!* Off the shelf availability. Drives or Couplings. Fractional to 1000 hp. Ask your local Dodge Distributor or write us for technical Bulletin.

DODGE MANUFACTURING CORPORATION, 2400 Union St., Mishawaka, Ind.

CALL THE TRANSMISSIONEER —your local Dodge Distributor. Factory trained by Dodge, he can give you valuable help on new, cost-saving methods. Look in the *white* pages of your telephone directory for "Dodge Transmissioneer."

DODGE of Mishawaka, Ind.

Flexidyne, accurately set for extra gentle starting, solves the problem of thread breakage on this textile beam warper—vastly multiplying productivity.

Smooth starting and deft spotting are required with this 20-ton crane. Flexidyne accomplishes both—and by so doing saved $4,000 in electric controls!

A ball mill drive is a tough one. Flexidyne not only eases heavy starting shocks here but eliminates the necessity *and the cost* of an oversize motor!

5063 on Reader Service Slip

Teflon tape — two feet wide

Wider Teflon tape is available in a variety of thicknesses from 0.005 to 0.096 inches. Maximum width is 24 inches.

Both conventional film and a cementable variety are now being made.

Its slickness, wear- and temperature-resistance suggest many uses in food processing, as well as in packaging and material handling.

Wide Teflon tape is a product of The United States Gasket Company, Plastics Division of The Garlock Packing Company, Camden 1, N.J.

For more information circle 5064 on Reader Service Slip.

Acid-alkali proof grouting cement

Acid-alkali proof, synthetic resin-base grout cement can be applied to damp joints without interrupting production. Available in four colors.

Four-page bulletin 108-A on Supertite grout cement is issued by Nukem Products Corp., Buffalo 20, N.Y.

For your copy simply circle 5065 on Reader Service Slip.

Tank coatings, linings

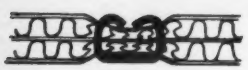
Information in file folder describes coatings and linings for storage and processing tanks, curing and cooking vats, scales, tables and conveyors.

Data File "L" is available from The Bishopric Products Co., 4413 Este Ave., Cincinnati 32, Ohio.

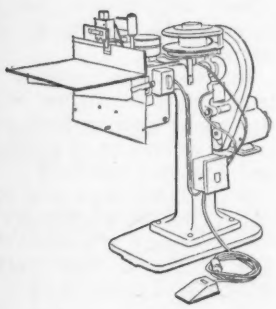
For your copy simply circle 5066 on Reader Service Slip.

CLOSURE IDEA BULLETIN

For Users of Fibreboard Boxes

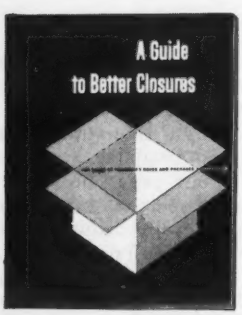


Box components--liners and corrugated media--are all fastened together with the positive clinch provided by wire stitching... clinches all flaps, too...especially important for boxes with wax, lacquer, or other special finishes.



600 full overlap boxes per shift are easily loaded and closed by one man with the HOHT Silverstitcher...can just as easily and effectively close 5-panel folders, and telescope boxes. W1-4 gives full details.

Free booklet, "A Guide To Better Closures" ...an impartial report on glue, tape, staple and wire stitching closure methods ...points the way toward greater savings, superior product protection...send for your free copy today.



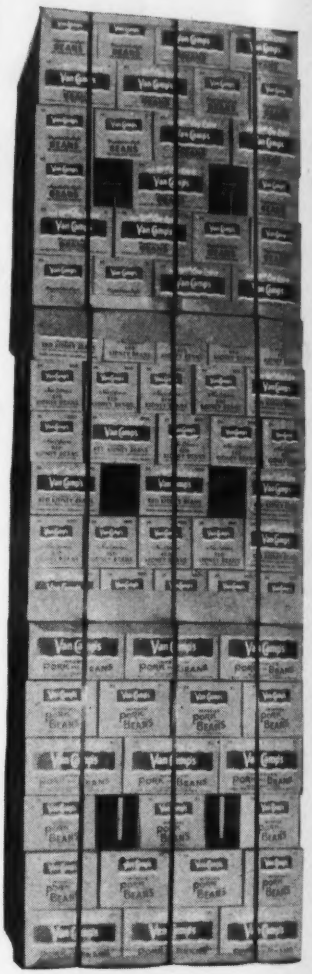
Color comes to wire stitching...increases sales appeal of package. Acme Steel Colorstitch Stitching Wire is chip resistant ...available in a choice of 10 standard colors...normally available in 10 lb. coils...25 and 50 lb. coils available on special order. Colorstitch size available from stock is .103" x .020"...other sizes on order. AD-152 gives complete information.

Your Acme Idea Man is thoroughly trained in fibreboard box closure. His know-how is backed by the 75 years Acme Steel has helped industry solve closure problems. Write Dept. FGW-98, Acme Steel Products Division, Acme Steel Company, Chicago 27, Illinois, for information on the complete line of Acme Steel box, book and metal stitchers.

ACME STEEL **WIRE STITCHING**

5067 on Reader Service Slip

fp **MATERIAL HANDLING**



Units of 2600 to 3600 lb can be stacked three high using less space than pallet loads

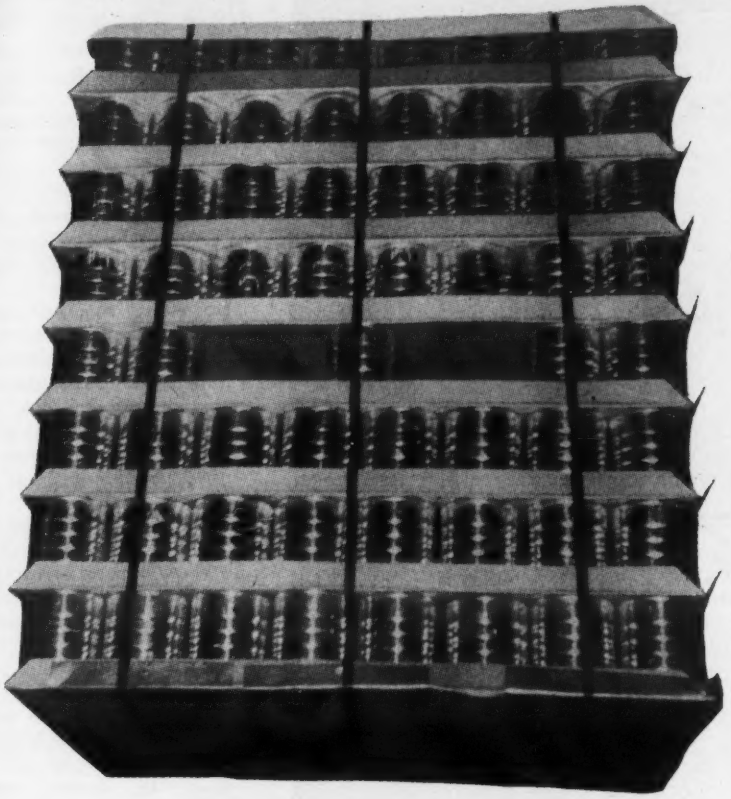
NEW method of "unitizing" cased or uncased canned foods substitutes fiberboard sheets and steel strapping for conventional pallets.

Technique provides savings in material costs, savings in handling, loading and unloading costs, and in-transit damage protection.

The unitized method, developed by Western Pacific Railroad Co., San Francisco, along with materials suppliers, is used for both "bright" (uncased, unlabeled) foods shipments, and for cased foods.

A distinguishing feature of the Western Pacific unitized load is use of two "mouseholes" (see photo above) for

Bright can pack has "mouse holes" for lift truck pickup without pallet. Metal corners protect cans



Cased and uncased canned foods

Shipped as Unit without Pallets

- **Saves 16 man-hr loading and unloading RR carload, reduces in-transit damage**
- **Kraft, Heinz, American Home Foods, Libby among dozen processors using or considering method**

fork lift handling.

Overall savings: Savings in Labor costs for loading a freight car have amounted to over 50 per cent.

Test shipments by Western Pacific show that as high as 16 man hours were saved in loading-unloading a unitized car, vs same operation when manually handled.

Plants adopting the method have reported savings for labor in excess of $250 per shift.

Bright can pack: Most popular version of the WP unitized load is the bright can pack. This is used principally for shipments of foods for remanufacture. Initial savings are high, since cartons are eliminated.

Thus, to ship No. 10 cans of tomato paste from the West Coast to Chicago, savings in carton cost alone amount to $92 per car of 38 unitized loads (equivalent carload: 1488-1/3 cartons of six cans each).

Cost of materials was figured at $3.05 per unit load vs $5.48 for the equivalent 39-1/6 cartons needed to handle the same amount of cans.

One company using the WP unitized method is Kraft Foods. Kraft is receiving pimientos in uncased five-gallon square cans, steel-strapped in a unit load.

Heretofore, damage had always been experienced in shipments of canned foods under conventional conditions.

In eight carload shipments of unitized five-gallon cans, damage was noted in only one car—and that was caused by a mechanical defect in the car.

Other companies, including H. J. Heinz, American Home Foods Division of

(*Continued on next page*)

Screw-Lift - Screw-Veyor

PATENTED AND TRADE-MARK REG. U. S. PAT. OFF. PATENTED AND TRADE-MARK REG. U. S. PAT. OFF.

... give you the highest degree of FLEXIBILITY and ADAPTABILITY

Buildings and Structures

are usually designed around processes and material handling operations and once up changes are difficult. With a Hammond Screw-Veyor and Screw-Lift doing the conveying and elevating you have greater flexibility and adaptability.

Why? Because you are operating with tubes which can be located quickly and easily. You also can operate in tight places where a conventional conveyor would not function for lack of space.

Just think — a Screw-Veyor — Screw-Lift system is like having 5 systems in 1. *You convey — elevate — distribute — reclaim — recycle.* You do it speedily and efficiently, coordinating all operations with your processing procedure.

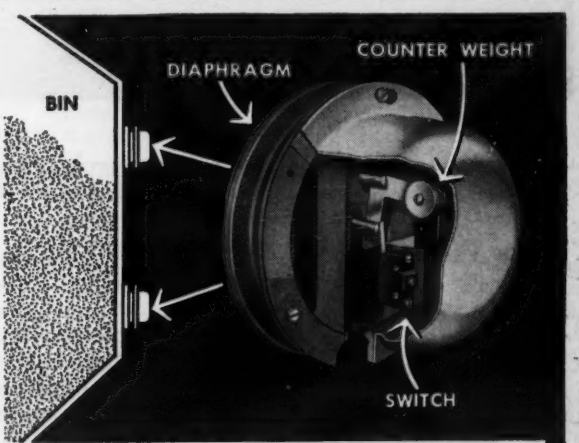
The system is dust-tight — moisture-proof — with features that prevent clogging, degredation or whip and allow full accessibility.

All users say Screw-Veyor — Screw-Lift are amazing. You'll say the same when you realize the savings in costs they will effect in your plant.

Want to see them at work? Come to our Laboratory or we'll escort you to an installation near you. In the meantime, write for forms M-500-2 and M-600-2.

Three of the largest food processing plants in the U.S.A. have over 100 Screw-Lifts in continuous operation
Screw Conveyor Corporation

5068 on Reader Service Slip



BIN-DICATOR® PAYS FOR ITSELF FIRST TIME IT PREVENTS BIN OVERFLOW, CONVEYOR CLOG, ELEVATOR CHOKE-UP, MACHINERY DAMAGE, REPAIR SHUT-DOWN

If you handle bulk material you probably need Bin-Dicators. The nominal cost of this protection and automatic control makes it the lowest-cost modernization you can buy. Available with Explosion-Proof Switch.

THE BIN-DICATOR CO. *Write for free copy of catalog BD-15 or call*

13946-C Kercheval • Detroit 15, Mich. VAlley 2-6952

WE SELL DIRECT • PHONE ORDERS COLLECT

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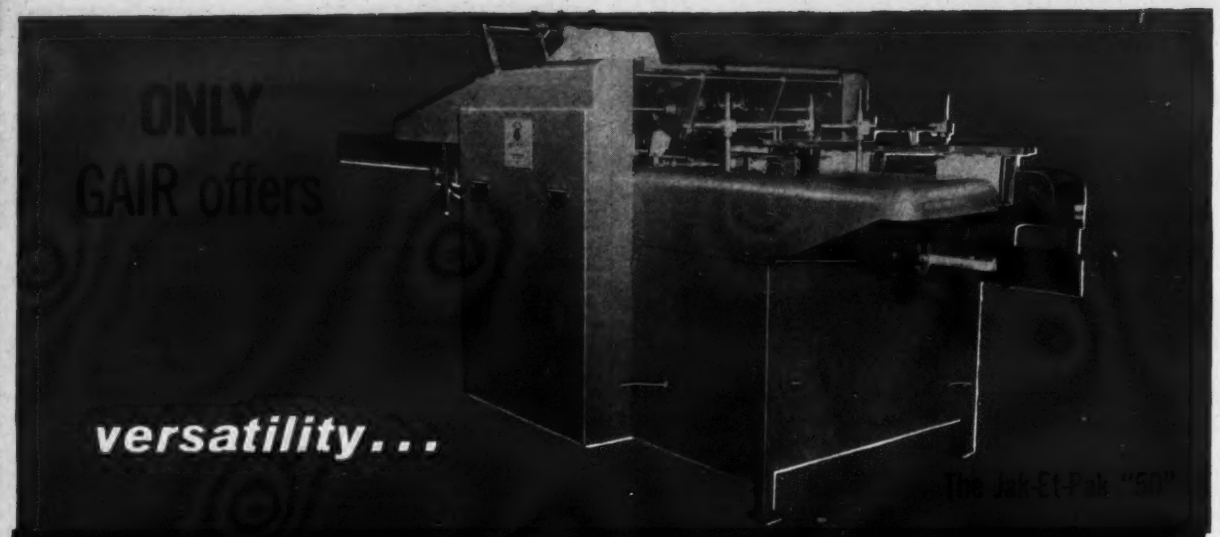
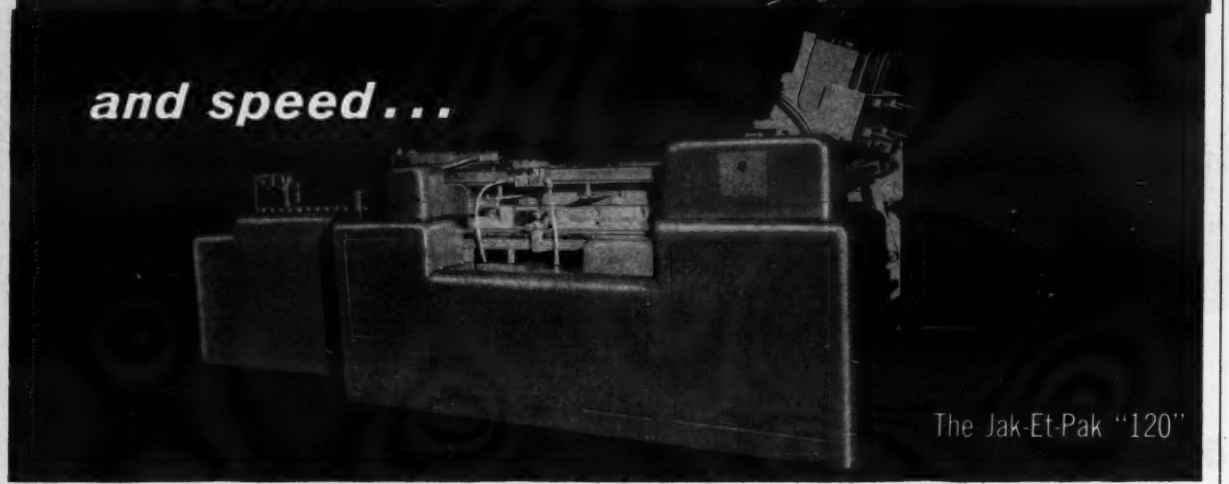


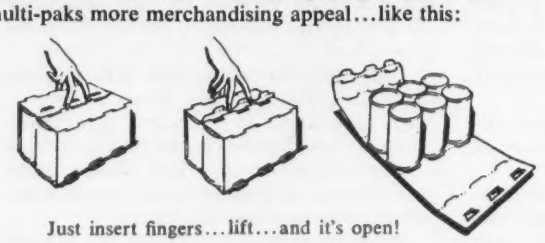


in multi-pak systems for bottles and cans!

IF YOU NEED PACKAGING VERSATILITY to handle bottles, jars, or any one of a wide variety of can shapes and sizes—the amazing Jak-Et-Pak "50" is really a *pocket-sized* dream. It handles double and single-line formations, and can change over from double line to single in less than an hour! New suction feed means no skipping or doubling—and the wide size range means that you can package practically anything, *better!* Yet the "50" is a mere 10'4" long, 4'2" wide, *including the in-feed conveyor!*

IF YOU NEED PACKAGING SPEED to handle cans at a fast and furious pace of up to 120 carriers or 720 units per minute, then Jak-Et-Pak "120" offers exceptional production efficiency. And even the amazing "120" requires only ⅓ the space of conventional equipment!

AND FOR YOUR CUSTOMERS' CONVENIENCE an ingenious locking mechanism, the exclusive Gair Duo-Lok is built into Jak-Et-Pak systems. Duo-Lok contains *no moving parts*—provides excellent package closure, and extra fast and easy opening to give your multi-paks more merchandising appeal...like this:



Just insert fingers...lift...and it's open!

GAIR creative engineering in packaging

BOXBOARD & FOLDING CARTON DIVISION OF CONTINENTAL CAN COMPANY • 530 FIFTH AVENUE, NEW YORK 36, N.Y.

material handling

(*Continued from preceding page*)

American Home Products, Libby McNeill & Libby and several Hawaiian pineapple shippers report the unitized method substantially reduces number of times individual cans must be handled.

Unitized cased goods: Overall efficiencies in labor and handling costs apply equally to cased foods.

However, the purpose of cased food shipments is somewhat different. Instead of shipment for remanufacturing in a captive market, cased foods must go to chains and other grocers who can use canned foods in unit load quantities.

Shipments of unitized cased foods are therefore not expected to expand as rapidly as have bright can shipments, 1) because initial savings of carton cost is absent, and 2) users must become acclimated to changing their buying and warehouse practices to receive individual loads of from 50 to 100 cases per unit.

How to unitize uncased cans: Each unit is made up by stacking cans in layers, separated by corrugated fiber trays.

A typical unitized load of No. 10 cans will use seven corrugated sheets to separate each layer of cans and furnish the top; a solid fiberboard sheet as base; 90-ft of steel strapping; seals and corner protectors.

Each fiber separator has two-inch flanges to increase load stability when strapped.

The void layer for fork entry is in lower half of stack, preferably just below center.

Five straps are applied, three girthwise, two lengthwise. Straps may be applied with manual tools, pneumatically powered tools, or by newly developed semi-automatic machine.

Using an automatic palletizer and the semi-automatic strapping machine, one man could handle output of six or more canning lines.

Unitized load method was developed by Western Pacific Railroad Co., 526 Mission St., San Francisco 5, Calif.

For more information circle 5071 on Reader Service Slip.

(*Continued on page 56*)

Personalities, Companies

A. E. Staley Manufacturing Company

Decatur, Ill., has won complete control of use of name "Staley" or "Staley's" as trademark for food or feed products. US Supreme Court's refusal of appeal by Staley Milling Company of Kansas City, Mo., ended seven years of litigation.

Quaker Oats Company

expects September 1958 completion for milling facilities being added to company's present warehouse in Asheville, N.C. Addition is part of a new, long-range feed expansion program involving construction of new feed plants in areas of concentrated poultry and animal production.

Miles Laboratories, Inc.

is about to begin construction at Elkhart, Ind., headquarters of expanded citric acid production facilities. Project, to cost $4½ million, will enable Miles to more than double its present output of citric. Company pioneered development of a submerged fermentation process for citric acid production.

Beatrice Foods Company's

wholly owned subsidiary, Hawaii Brewing Corp., Ltd., Honolulu, has converted part of its beer production from bottles to aluminum cans. Latter are punched out at brewery on fully automated converted German punch presses.

The Nestle' Company,

has begun construction of a $2 million, 34,480 sq ft, four-story milk processing building at its Fulton (N.Y.) Chocolate Works. Structure will be the Fulton facility's sixtieth. Inc.

(*More on page* 57)

For more information on product at right, circle 5072 see information request blank opposite last page.

new! "projection welded" conveyor chain stays cleaner, runs better, reduces conveying costs!

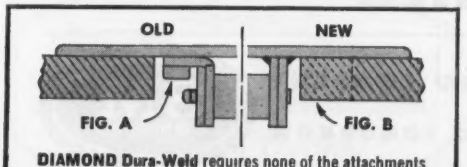
DIAMOND *dura-weld* Top Plate Conveyor Chain

...streamlined to turn out more work with less worry— in food, beverage, automation, packaging and other small product handling operations.

DIAMOND "projection welds" produce a permanent metal fusion as strong as the metal itself. Permits cleaner streamlined design.

Dura-Weld's case hardened bushed joints and deep sprocket engagement assure smooth chain operation under maximum power, load and speed conditions.

Dura-Weld is easily detachable at any joint. Dura-Weld links may be attached to existing roller chain of the same general type and may be used on the same rails.



DIAMOND Dura-Weld requires none of the attachments or rivets shown in Figure A. This permits a simplified design that is easier to keep clean, and gives up to 35% more rail load-bearing area. Permits use of wider supporting rails for greater distribution of load, Figure B.

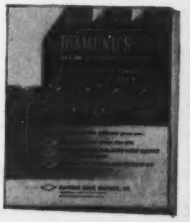
DIAMOND Dura-Weld is a greatly improved top plate conveyor chain designed for modern high-load, high-speed conveying requirements.

Dura-Weld top plates are "projection welded" to the roller chain linkplates, creating a permanent metal fusion. This technique requires no attachments, rivets or extra fittings which add to the weight and cost of other chains. You get a lighter weight, smoother running chain, that *costs less to buy and less to maintain*—yet is designed to operate continuously at *maximum loads and speeds.*

Dura-Weld gives you up to 35% more rail load-bearing area, permitting use of wider supporting rails. Because it has fewer parts to collect dirt it is easier to keep clean . . . and is less susceptible to shutdowns for repairs or maintenance.

Wherever flat top conveyors are used for intra-machine processing, bottling, capping, labeling, etc., you can cut costs and speed up production with new, streamlined, DIAMOND Dura-Weld Conveyor Chain. Write for full details, *today!*

Diamond Dura-Weld Conveyor Chain is now available from your Diamond Distributor's stock!



Write for FREE Folder!
Gives complete listing of DIAMOND Distributors and full description, specifications and prices of DIAMOND Dura-Weld Top Plate Conveyor Chain.

DIAMOND CHAIN COMPANY, INC.
A Subsidiary of American Steel Foundries
402 KENTUCKY AVENUE, INDIANAPOLIS 7, INDIANA
Offices and Distributors in All Principal Cities

New Carton Reinforcing Machine cuts costs...

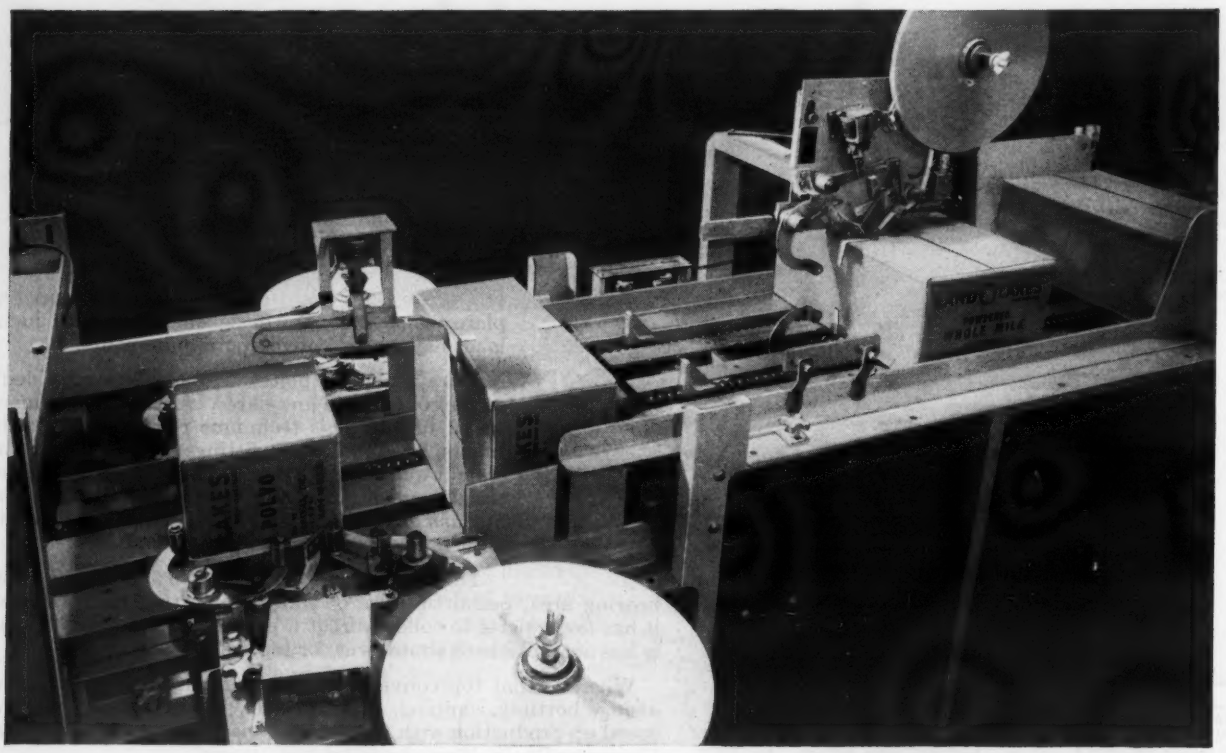
Reinforces up to 30 cartons a minute!

Reinforcing cartons for overseas shipment is now a completely automatic operation at Land O'Lakes Creameries, Inc., Minneapolis, thanks to "3M-MATIC" taping and dispensing methods.

Result: automatic reinforcing of 12 cartons a minute with super-strong "SCOTCH" BRAND Filament Tape doubled previous production rate. In addition to giving better results, man-hours have been cut to practically zero. Only half as much reinforcing material is used. Production speeds of *30 cartons per minute* are possible with this "3M-MATIC" system—on almost any size or shape carton.

3M Customer Engineering Service is available to *you*—to help solve *your* production problems with "3M-MATIC" taping and dispensing methods—at no cost or obligation. For further information write Minnesota Mining and Manufacturing Company, St. Paul 6, Minn. Dept. IF-98.

"SCOTCH" is a registered trademark for the pressure-sensitive adhesive tapes of 3M Co., St. Paul 6, Minn.
Export: 99 Park Ave., New York 16. Canada: London, Ontario.



When tape costs so little, why take less than

REG. U.S. PAT. OFF.
SCOTCH BRAND

MINNESOTA MINING AND MANUFACTURING COMPANY
...WHERE RESEARCH IS THE KEY TO TOMORROW

3M COMPANY

5073 on Reader Service Slip

material handling

(*Continued from page 54*)

Involved in development, and manufacturer of semi-automatic strapping machines: Acme Steel Products Co., 135th St. & Perry Ave., Chicago 27, Ill.

For more information circle 5074 on Reader Service Slip.

Others who assisted with the development are:

A. J. Gerrard & Co., 1950 Hawthorne Ave., Melrose Park, Ill.

Signode Steel Strapping Co., 2600 N. Western Ave., Chicago 47, Ill.

and makers of fiberboard products.

Provides up to 80 tons of self-unloading bulk storage

Larger-size, prefabricated, galvanized steel tank of 12-ft diam, for bulk storage of free-flowing, dry, granular materials is described in 4-page brochure. Over-all height is 20'2".

Tank protects against contamination and moisture damage, prevents spillage losses. Round construction — no corners for product to hang up. Cost of bolted tank is approximately half that of same-size welded tank.

Suspended hopper is equipped with 23" round slide valve with easy action rack-and-pinion control to regulate material flow at center draw-off.

Pneumatic loading accessories are optional extras. Other accessories include vertical steel ladders that provide easy access to tank fill openings. Roof ladder is standard equipment.

Brochure also describes 26 other sizes of storage tanks in complete line. All are shipped ready-to-assemble without need of special tools.

"Butler Bulk-O-Matic" brochure is available from Butler Manufacturing Company, 7400 E. 13th St., Kansas City 26, Mo.

For your copy simply circle 5075 on Reader Service Slip.

Next Month: Spotlight on Material Handling

Personalities, Companies

Armour and Company announces formation of two new divisions. Specialty Food Products Division will supervise marketing of Armour Fresh Frosted Meats in consumer packages, Miss Wisconsin Cheese, Pan O' Gold chicken and Armour Star Stuffed Turkeys. T. C. Gordon has been named general manager.

Samuel Teitelman, as director of New Products and Marketing Services, a newly created position, will direct the consumer service, consumer research and marketing research departments and the newly created new products department.

H. Kohnstamm & Co., Inc. will shortly move executive offices from 83-93 Park Place to 161 Avenue of the Americas, New York City, as result of outgrowing 50-yr headquarters. New offices formerly were occupied by Merck & Co.

US Industrial Chemicals Company Div. of National Distillers and Chemical Corp., has constructed a new plant at Anaheim, Calif., to manufacture new MOREA® liquid livestock feed premix. Plant, located on property of the large U.S.I. alcohol facility, is already operating.

Anheuser-Busch, Inc. of St. Louis has acquired the Miami, Fla., plant of American Brewing Co., subsidiary of City Products Corp. The Miami brewery will continue to make Regal Beer under the same management.

Pablum Products Div. of Mead Johnson & Co. has acquired Bib Corp., Lakeland, Fla.

(*More on page* 75)

For more information on product at right, circle 5076 see information request blank opposite last page.

AUTOMATIC'S NEW
SKY-HI-LIFT

Operates Easily in Truck Trailers
...Yet Lifts Loads Sky High

Now in 2,000 and 3,000 lb. capacity* (based on 48" long load)

Check for yourself—no other truck with a collapsed height of 68" can lift 144"

The Sky-hi-lift—teamed with Automatic's battery-powered, stand-up, end-controlled Docker—is the answer to a highly efficient, highly mechanized warehouse operation. You get all the advantages of the Docker's versatility and maneuverability, plus these exclusive Sky-hi-lift features:

High 144" Lift...To take advantage of your high bays; increases warehouse capacity a full third.

Low 68" Mast...Lets you load and unload trucks, trailers, rail cars, and enter low-door elevators.

2,000 and 3,000 lb. capacity...the right weight for entering trailers without fear of going through the floor.

In short, mount the Sky-hi-lift on a Docker and you get one truck that does the job of two—with no need to transfer loads. Also available for other Automatic trucks. Write today for information on how the Sky-hi-lift can help you squeeze more profit out of existing space; and ask about convenient lease and purchase terms.

**Similar type of mast available for heavier capacities.*

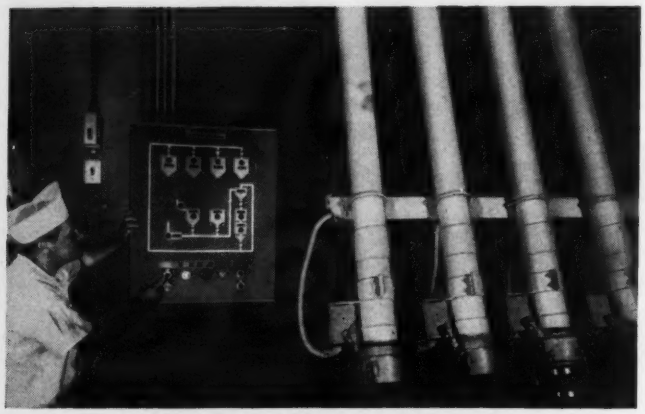
Electric Automatic® Industrial Trucks

AUTOMATIC TRANSPORTATION COMPANY
A Division of The Yale & Towne Manufacturing Company
Department P-8, 73 W. 87th St., Chicago 20

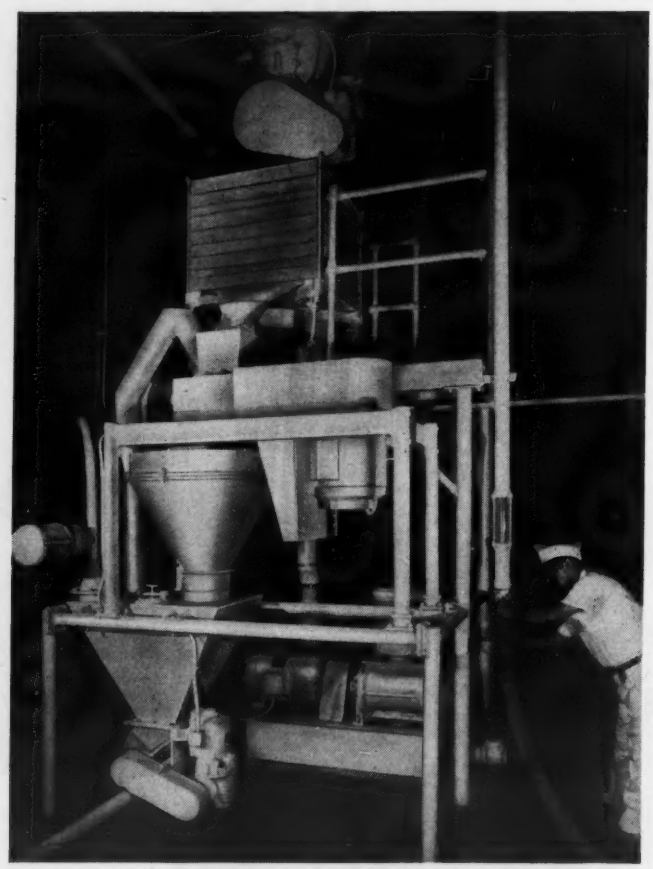
Cost less to own... less to operate

WORLD'S LARGEST EXCLUSIVE BUILDER OF ELECTRIC-DRIVEN INDUSTRIAL TRUCKS

The Arithmetic of Materials Handling



Central Control Panel of Jewel Tea's flour-handling system. At right are main conveying lines—each to a separate bin.



FULLER

Pneumatic Conveying System Provides Low Cost, Sanitary Flour Handling Method For New Jewel Tea Co., Inc. Bakery

Automation . . . at the new Jewel Tea Company bakery in Melrose Park, Ill., . . . means baking more than four tons of bread an hour under the highest standards of sanitation, at the lowest possible production cost. A Fuller-engineered *pneumatic* flour-conveying system helps make this record performance possible.

This automatic, smooth running pneumatic conveying system is controlled by one man and a centrally located push-button control panel. By making a simple connection, turning a switch and pressing a button, the operator empties 100,000 lb. GACX Airslide carloads, of bulk flour, into storage bins. Other buttons send the flour through predetermined cycles of sifting, weighing, mixing — in dust-tight, self-cleaning pneumatic lines.

Compact, flexible, easy-to-install Fuller pneumatic conveying systems are *integrated* into your plant processed by Fuller specialists. Write or phone today outlining objectives such as capacity, distance and material to be handled. Fuller engineers will gladly furnish additional information and make appropriate recommendations.

1308
A-273

Lightweight tilting-frame hydraulic system hoists 30,000 lb capacity detachable containers, providing

Larger within legal

✔ *2½ times load-hoisting efficiency of straight-lift units.*

To pick up container, driver raises tipping frame to 45° angle, lowers automatic jack and backs up to container. Spring-loaded bail encounters curving guide rail on front base of container and slides back until first lifting hook recess is reached. Bail automatically snaps up and engages hook.

Hydraulic cylinder is then drawn back full length of its stroke, pulling container up on frame. Cylinder is then extended, automatically disengaging bail from first hook and driving it down guide rail under container to second recessed hook — spaced to coincide with length of cylinder stroke. Bail-cylinder repeats ratcheting cycle until container passes center of gravity

Tilting frame is then lowered to horizontal position, and bail pulls container forward and locks it in carrying position. To dump load, doors are unlatched and container is elevated to 45°. To put container on ground, pick-up cycle is reversed, with bail pushing against back of hooks. To put container on dock, tilting frame stays horizontal

Uses: For short-haul removal of large accumulations of waste materials — vegetable trimmings, fuller's earth, ashes, spent filters, fertilizer, sawdust, straw, scrap and general rubbish.

Company is developing water-tight, tank-type containers for handling chemicals, liquid wastes and sludge, cargo-type containers for handling raw

FULLER COMPANY GENERAL AMERICAN TRADE MARK

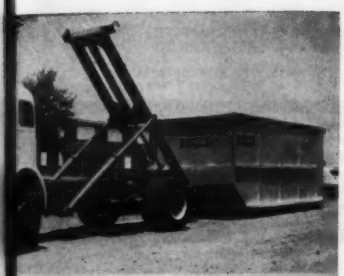
Fuller
...pioneers in harnessing AIR

FULLER COMPANY
176 Bridge St., Catasauqua, Pa.
SUBSIDIARY OF GENERAL AMERICAN TRANSPORTATION CORPORATION
Birmingham • Chicago • Kansas City • Los Angeles • San Francisco • Seattle

5077 on Reader Service Slip

payloads
axle limits

✔ *all operations controlled from truck cab*



vegetables, grain and finished products.

Features: Simple hydraulic system pulls container up tilting frame using ratchet and hook principle, doing away with need for tremendously strong but heavy lift mechanisms.

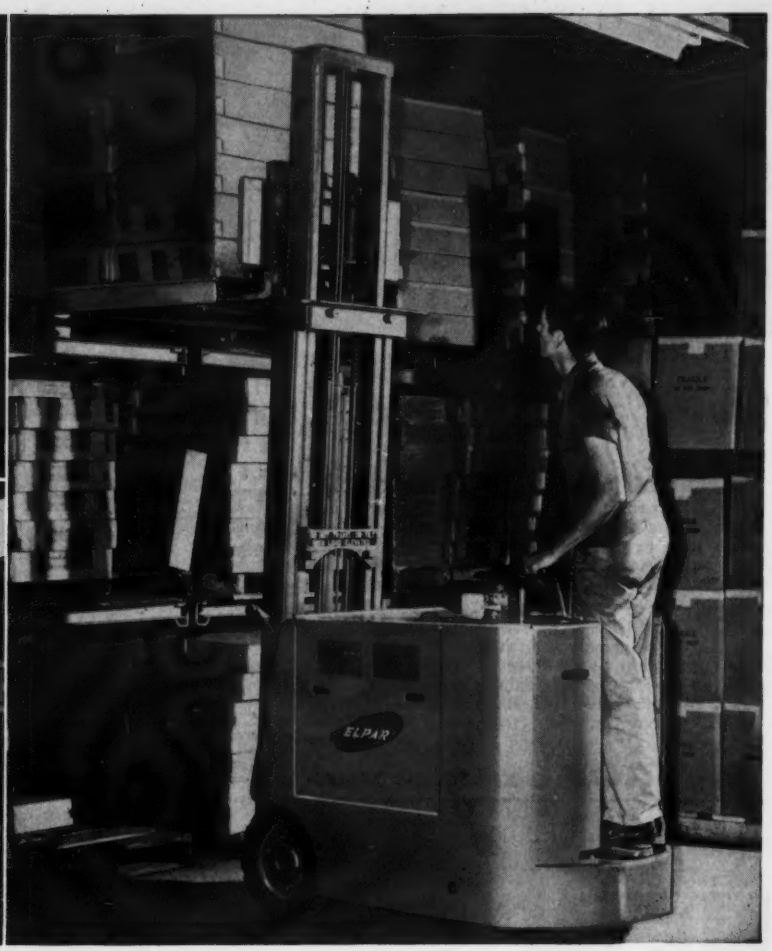
Unit will hoist 500 gross lb for every 100 lb of own weight. Conventional, straight-lift unit

(*Continued on next page*)

new

ELPAR®

CARGO SCOUT...



The Speediest Dock Truck Made

On the dock and in the plant, this all-new, all-around performer cuts minutes from every handling trip. The Cargo Scout has the fastest travel speed (up to 6½ m.p.h.) and the fastest lift speed (up to 72 f.p.m.) of any model in its class. Exceptionally compact and maneuverable, the Cargo Scout scoots into and out of the most confined areas quickly, easily. Fast electric truck acceleration, 360-degree turning and ease of operator mounting and dismounting are a few more of its time-saving features.

In 2,000- to 4,000-pound capacities, the Cargo Scout incorporates basic ELPAR electric truck dependability . . . your assurance of *twice* as many years of service as comparable gas models—with only *one-third* the operating and maintenance costs.

GET ALL THE FACTS

about the Cargo Scout, and the money-saving advantages of ELPAR electric trucks. Send for Cargo Scout Bulletins and the ELPAR *Lift*, "Gas vs. Electric Trucks."

ELPAR®

ELECTRIC TRUCKS

THE ELWELL-PARKER ELECTRIC COMPANY

4003 St. Clair Avenue • Cleveland 3, Ohio

Twice the Life...One-third the Operating Costs

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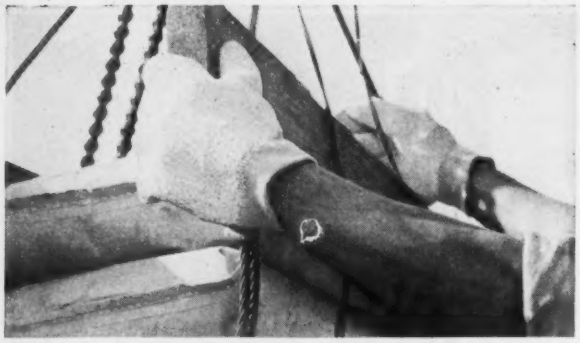


Grab-it No. 660W, an Edmont Extracoated glove

New "Extracoated" glove wears 20% longer

► **By increasing the amount of coating** on the palm, Edmont now gives this Grab-it glove at least 20% longer wear than before. Far outwears ordinary leather; outwears at least a dozen pairs of canvas gloves. Its cushiony natural rubber grip is positively slip-proof; makes this Grab-it type the safest general handling glove.

► **Free Test Offer to Listed Firms:** We make more than 50 types of coated gloves, including 8 Grab-it styles. Describe your operation. We will send samples of the correct glove for on-the-job testing. Edmont Manufacturing Company, 1212 Walnut Street, Coshocton, Ohio. In Canada, write MSA, Toronto.

Edmont JOB-FITTED GLOVES

5079 on Reader Service Slip

NEW BULLETIN

tells how to cut your pumping costs

Describes new Ampco elastomer- and rubber-lined pumps that (a) cut the cost of handling corrosive liquids and abrasive slurries; (b) will not affect taste or color; (c) will not introduce impurities into the material being pumped; (d) are available from stock — in eight sizes — through your Ampco Pump Distributor.

Write for Bulletin P-6 today!

AMPCO METAL, INC. AMPCO ®

DEPT. 2291, MILWAUKEE 46, WISCONSIN
WEST COAST PLANT: BURBANK, CALIFORNIA
SOUTHWEST PLANT: GARLAND (DALLAS COUNTY), TEXAS

P-43

5080 on Reader Service Slip

(Continued from preceding page)

Conventional, straight-lift unit can hoist only 200 gross lb for every 100 lb of its own weight.

Container can be loaded onto truck from ground- or dock-level, unloaded from truck to ground- or dock-level without driver leaving truck cab.

Description: System consists of 22,000 lb and 30,000 lb capacity containers, specially built truck, and truck-mounted components; tilting frame, two hydraulic raising and lowering cylinders and a double-acting bail cylinder.

Maximum height and length of container are limited only by state regulations. Models for off-the-road use will be available with hoisting capacities limited only by truck's load capacity.

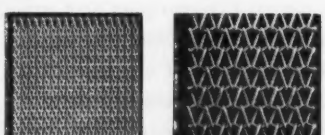
Dempster-Dinosaur material handling system is development of Dempster Brothers, Inc., P. O. Box 3127, Knoxville, Tenn.

For more information circle 5081 on Reader Service Slip.

Wire belt designs for baking industry

Special wire mesh belt designs for cracker baking and for bread cooling are described in 12-page booklet.

Hints on selection, installation and care of mesh belts are included. Nine basic mesh weaves are also pictured and described.



Cracker baking belt (left) has dense, smooth mesh; bread cooling belt has open mesh for maximum circulation

Teflon-coated mesh belts for handling of dough and other bakery products without sticking are described.

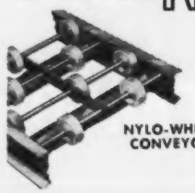
Booklet, "Metal-Mesh Belts for Conveying and Treatment of Bakery Products," is issued by The Cambridge Wire Cloth Co., Cambridge, Md.

For your copy simply circle 5082 on Reader Service Slip.

Resists
ALL FOOD ACIDS
STEAM CLEANING
SALT BRINE
MILD ACIDS
DETERGENTS
SAND - GRIT - OIL

LASTS 10 TIMES LONGER THAN STEEL BEARING CONSTRUCTION

METZGAR NYLO-® CONVEYORS
WHEEL or ROLLER
GRAVITY or POWER
FOR USE IN
- food processing
- wash and pack operations
- pre-packaging departments
- frozen foods storage



NYLO-WHEEL CONVEYOR

NYLO-ROLL CONVEYOR

Only Metzgar has NYLO-® construction. In many conveyor applications in food processing where steel fails, NYLO-® functions perfectly. Lighter, cleaner, tougher, needs no lubrication.

• WRITE FOR DETAILS •

METZGAR CONVEYOR CO.

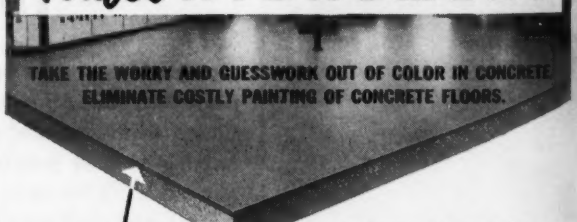
461 Douglas St., N. W.

MFRS. OF WHEEL & ROLLER GRAVITY & LIVE ROLLER CONVEYORS • POWER BELT CONVEYORS • SWITCHES • ACCESSORIES

GRAND RAPIDS 4, MICH.

5083 on Reader Service Slip

For the BEST in NEW CONCRETE FLOORS, Architects, Contractors and Cement Finishers *Prefer* HYDROMENT



Hydroment's superiority over other concrete floor toppings is a well established fact.

Here's a Surface with IMPROVED Hardness, Density Wearability, Corrosive, Resistance, and Lasting Appearance.

HYDROMENT IS BEST BECAUSE:

1. Proper balance of quartz and iron aggregate results in an unexcelled wearing course with no rusting or dusting.
2. Optimum grading of quartz and iron aggregate imparts surface density unobtainable in any other concrete hardener.
3. No periodic maintenance problem with Hydroment. It resists rugged wear for unusually long periods.

Write for Complete Details and NEW HYDROMENT BULLETINS.

4805 LEXINGTON AVE. CLEVELAND 3, OHIO

THE UPCO COMPANY

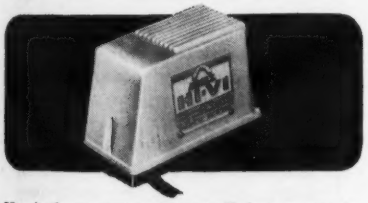
PIONEERS IN INDUSTRIAL RESEARCH SINCE 19[illegible]

5084 on Reader Service Slip

UNSTICK stuck BINS

with new electro-permanent magnetic

ERIEZ HI-VI VIBRATORS



Here's the newest and most efficient answer to those hard-to-move materials in sticky bins... designed to provide superior operating efficiency... exclusive pinpointed vibration gets right to the trouble spot – starts stubborn materials moving!

NO RECTIFIER NEEDED • COMPLETELY ENCLOSED HOUSING • GREATER VIBRATION IMPACT THAN COMPARABLE SIZE UNITS • RUGGED AND DURABLE • LOW FIRST COST • LOW OPERATING COST • Special Mill Mutual ACCEPTED Units for HAZARDOUS DUSTY LOCATIONS

GET THE WHOLE STORY . . . WRITE TODAY.
Eriez Mfg. Co. 75JB Magnet Dr., Erie, Pa.

ERIEZ

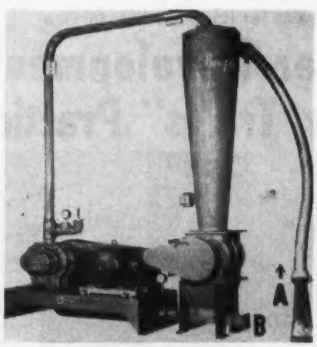
5085 on Reader Service Slip

Pressure and vacuum from same blower move solids

Modification of an earlier design for pneumatic conveying of bulk solids has resulted in a simpler, more reliable unit. Its major use will probably be in small and medium size installations with materials up to 80 mesh and with densities of 15 to 60 lb per cu foot.

Basic change was the substitution of an airlock-manifold combination for the previous blow-through airlock.

Here's how the system works: Material is picked up with a conventional suction system and separated from the air stream by a cyclone. Solids discharge from the separator is through a 16 x 14" rotary feeder.



Note how exhaust air from cyclone is reinjected under rotary feeder

But meanwhile, exhaust from the cyclone is pulled through a positive displacement blower and discharged into delivery line. This line runs immediately under the rotary feeder.

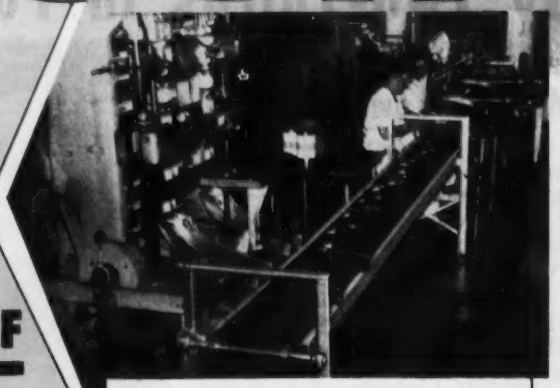
It has been possible to use flexible rotor blades in the feeder. This cuts the damage potential of tramp iron, eliminates the need for magnetic protection in most cases, and cuts the possibility of particles jamming between the rotor and its housing.

Pneu-Pac air handling systems are a development of Sprout, Waldron & Co., Inc., 130 Logan St., Muncy, Pa.

For more information circle 5086 on Reader Service Slip.

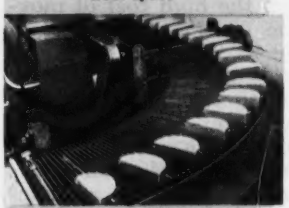
LOOK

HERE'S THE NEW DO-IT YOURSELF



WENDWAY CONVEYOR SYSTEM

• Simple or Complex—Wendway unitized assemblies may be easily ceiling mounted to save valuable floor space.



• Wendway assemblies are ideal for all light production and processing work. May be caster mounted for full portability.

• Where solid belt conveyor is required, canvas, Neoprene, rubber, etc., can be supplied to meet the need.

Wendway, the light product (linked wire belt type) conveyor system, is now available in complete, prebuilt assemblies—ready for installation in your plant by your own workmen.

Now—you save installation and supervision costs plus time and manpower. Why? Because Wendway unitized sections are all pre-engineered, prebuilt and guaranteed to operate flawlessly on practically any light product use.

It's so easy—Wendway assemblies are available in standardized powered straight sections, curves, switches, inclines, declines in 6", 9", 12", 15", 18", 24" and 30" belt widths. Curved sections of 90° or 180° and gearhead power units to match your needs. For heavier application, pre-engineered straight sections, equipped with *solid* belting, are available.

Write today for detailed information or conveyor system planning assistance. USP representatives will gladly supply the facts—without obligation.

ATTENTION DISTRIBUTORS!
A limited number of exclusive territories are still available. Contact USP for information.

Write Today

Gentlemen:
Please rush me detailed information, specifications and prices on your Wendway conveyor assemblies.

Name _____
Company _____
Address _____
City _____ *Zone* ___ *State* ___
Please have your representative call at once ☐

USP **UNION STEEL PRODUCTS CO.**
ALBION, MICHIGAN

5087 on Reader Service Slip

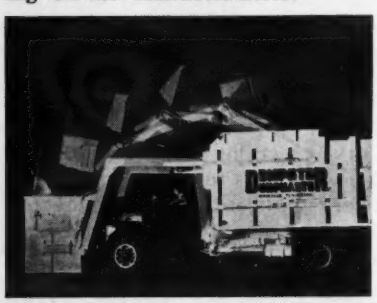
New Invention Cuts Waste Disposal Costs By Two-Thirds in Food Processing Plants

Industry Cost Averages May Be Lowered Soon

If your plant is average, you're probably spending between .55 and .85 cents for every cubic yard of waste or trash moved to the disposal area . . . not including truck operation costs.

A recent development, the DEMPSTER-DUMPMASTER self-loading packer, promises to cut direct disposal costs to a new industry low of .07 to .16 cents per cubic yard for volume producers.

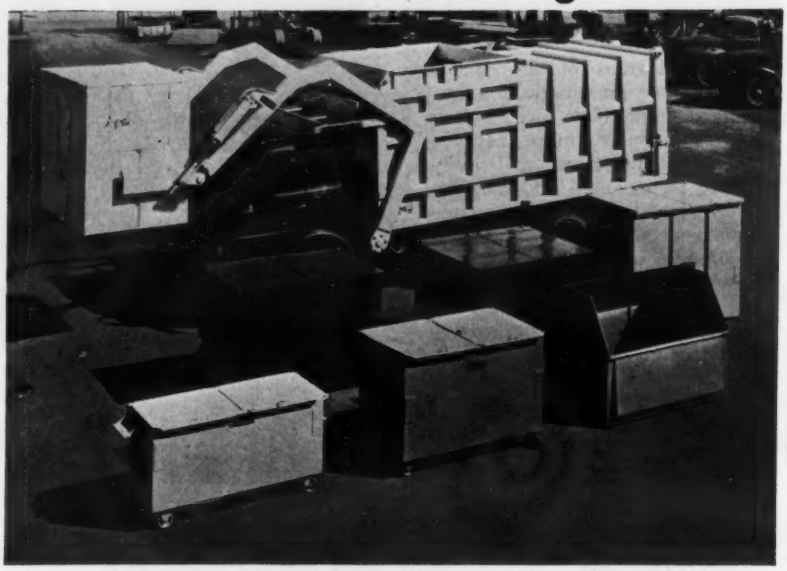
This new approach is an extension of the widely-established DEMPSTER-DUMPSTER System, in that it employs detachable waste storage containers. However, instead of carrying each container to the disposal area for dumping, the new machine empties many containers into its body, where the material is compacted to a fraction of its former volume. This permits per-trip payloads of 50 to 100 cubic yards of loose material, depending on its characteristics.



Multiple exposure photo shows dumping of 6 cu. yd. container.

How it Operates

The one-man Dumpmaster makes its rounds from container to container. Approaching, the driver engages lifting channels on the container's sides with the clearance arms. From controls in the cab, or remote controls at the front bumper, the container is lifted and rotated, discharging waste into the packer body. The material is hydraulically compacted while enroute to the next location. Containers may also be handled from docks or below grade. The safety clearance arms never pass the cab windows, eliminating possibility of driver injury.



The newly developed DEMPSTER-DUMPMASTER is shown with the seven basic containers it serves. Being hoisted is a 6 cu. yd. model. On ground are 1, 2, 3, 4 and 5 cu. yd. designs. Open container is used for hand-loading service.

New "Tracking" Caster Developments Make Plant "Container Trains" Practical

To whip the high cost of moving refuse outside, many plants are going to "container trains." Using special casters and couplers, eight to ten containers are towed by "plant mules" to inside generation points where an empty is dropped off and the full one is coupled on. Outside, the containers are uncoupled and automatically emptied by the waiting DUMPMASTER.

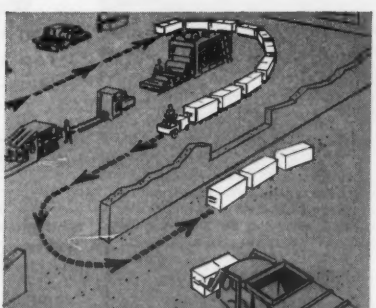


Diagram shows containers, in train, being hauled outside for emptying.

* * *

Many Designs Available

Standard and special-purpose containers, ranging from one through six cubic yard capacity, with or without casters, are available. The two cubic yard container above holds the equivalent of over 12 30-gallon trash cans.

Cost-Finding Book Offered

Write for the free 40-page book, "How to Cut Waste Disposal Costs," offered by the manufacturer. It contains cost-finding formulas, solutions to problems, case histories, industry average costs, etc. Equipment demonstrations arranged on request.

Mfd. by Dempster Brothers, Inc.

DEMPSTER BROTHERS

KNOXVILLE, TENN., DEPT. FP-9

5088 on Reader Service Slip

material handling

To better understand pneumatic conveying . . .

Reprint of technical article treats engineering considerations, applications and limitations of pneumatic conveying.

Article covers cleanliness, safety and economy advantages; enumerates limitations; then discusses the five major factors in design of pneumatic handling systems.

A schematic diagram showing critical points of a typical system, capacity graphs for both negative and positive pressure systems and a table comparing the relative merits of air and mechanical conveying methods are included.

Bulletin F-14, "Air Conveying of Dry Materials," four pages, is issued by Sprout, Waldron & Co., Inc., 130 Logan St., Muncy, Pa.

For your copy simply circle 5089 on Reader Service Slip.

Unload carload of empties — 2½ man-hr vs 21½

- Palletized "packages" of pails easily carried by two men
- Allows 15-high stacking, increasing sotorage to 40%

Features: Pallet units save pail user 90 per cent of handling time — in unloading freight cars and from storage to filling, filling to storage or shipping area.

Method eliminates handling individual pails or need for power lift trucks to move empties.

Package of 27 five-gal pails is easily carried by two men. After filling, processor can repack pallets and send to storage or shipping via lift truck.

Because pails can be stacked 15 high instead of nine or ten high, storage area use can be increased up to 40 per cent.

Description: Pail-package consists of top cap and bottom cap of corrugated board between which 27 five-gal steel pails are packed in three layers.

Entire assembly is held firm

Package unit prevents pail movement during shipment, eliminating main cause of damage

and unitized by two steel straps.

"Handy-Pak" package unit for steel pails is development of Bennett Industries, Inc., Lincoln & Washington St., Peotone, Ill.

For more information circle 5090 on Reader Service Slip.

Gravity wheel conveyor can be steam cleaned

Four-page catalog describes line of gravity wheel conveyors, including models having all-metal and all plastic wheels and bearings. Each type requires no lubrication. Operating parts are rust proofed.

Plastic-wheel conveyors can be steam cleaned, are impervious to fats, food acids. A special small-wheel (¾" diam) model will travel empty trays freely by gravity with only 1" drop per 10 ft section.

Catalog on Traffic-managed Flow Handling Systems is issued by Metzgar Conveyor Co., 461 Douglas St. N.W., Grand Rapids 4, Michigan.

For your copy simply circle 5091 on Reader Service Slip.

Brochure goes 'inside' rider-walkie trucks

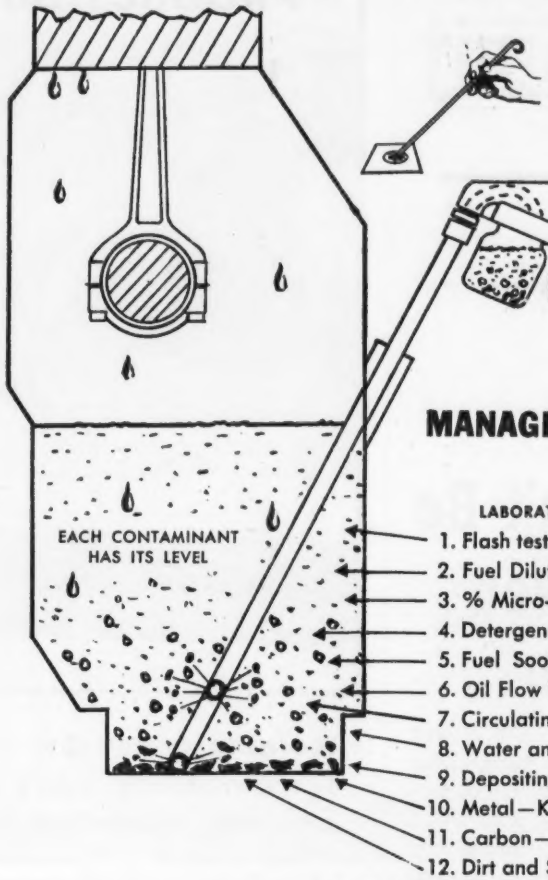
A "cutaway" brochure has die-cut pages showing inside features of line of rider-walkie trucks. Booklet pictorially disassembles the trucks as pages are turned.

Trucks are produced in pallet, platform, stacker and

(*Continued on page 65*)

Executives who face the financial responsibilities of trucking and delivery operations . . . can

"Look inside" without leaving their desks



COMPARATIVE LABORATORY TESTS PROVE OIL BLOTTER TESTING CAN BE VERY MISLEADING

WRITE FOR RESULTS OF FABER OIL SAMPLING METHOD

(2 monthly periods in 40 states)

63,806 ENGINE ANALYSES

MANAGEMENT NEEDS THIS INFORMATION

LABORATORY ANALYSES	ENGINE CONDITION
1. Flash test (crankcase temp.)	Thermostat—Radiator—Cooling
2. Fuel Dilution in Oil	Carburetor—Injector—Pump
3. % Micro-Particles	Contamination Burden—Diesels
4. Detergency Activity	For Diesel & Vapor Fueled Eng.
5. Fuel Soot, Amount	Ignition—Valves—Overchoke
6. Oil Flow Test (Viscosity)	Thickened or Thinned Oil
7. Circulating Sludge Index	Ineffective Oil Filtration
8. Water and Emulsion	Leaking Gaskets—Heads—Blocks
9. Depositing Sludge	Sludged Engine—Oil Lines
10. Metal—Kind & Effect	Bearing or Ring & Wall Wear
11. Carbon—Amount & Effect	High Piston Temp.—Timing
12. Dirt and Sand	Air Cleaners—Breathers

ACID? *Acidity Test → If desired

*See Nov. 1956 Edition of ASTM, page 447; i.e.,

"No general relationship between bearing corrosion and acid numbers is known."

21,888 oil analyses from 4,856 engines in 27 garages from coast to coast, found → #1 garage—30% needed oil drains under 1,500 mi. #27 garage—89% were good after 5,000 mi. of use.

(All buying oil under the same specifications)

Faber Laboratories have tested over 5,000,000 samples of used oil drawn from engines

FABER Laboratories

IMPARTIAL ★ NEUTRAL ★ UNBIASED

NEW YORK 106-110 Lafayette St. | LOS ANGELES 1025 Georgia St. | CHICAGO 1313 W. Randolph St. | SAN FRANCISCO 1450 Howard St. | SEATTLE 1484 W. 70th St.

Send results of 63,806 oil analyses to:

NAME_____

FIRM_____

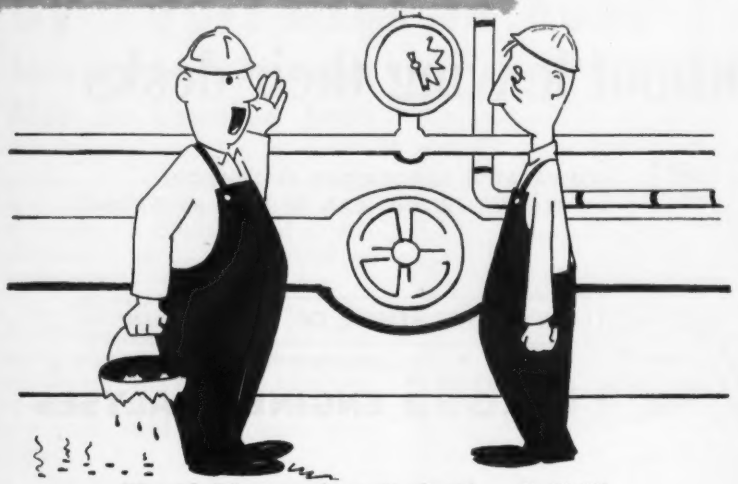
ADDRESS_____

CITY_____

Printed in the interest of the motor transportation industry. 9-6

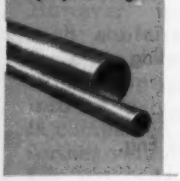
5092 on Reader Service Slip

Life in these excited states...



"I said, I borrowed a pail of acid... O. K.?"

ACE-ITE *all-purpose toughie*



High-impact, rubber-plastic, most economical for average chemicals. ½ to 6". Screw or solvent welded fittings. Valves ½ to 2". NSF-approved. *Bul. 80A.*

Time Can't Be Borrowed Either

Equipment running on borrowed time due to corrosion has a knack of dropping the bottom out of production when you can least afford it. No need to risk it . . . just specify Ace chemical resistant equipment. Best for the money anywhere . . . backed by 108 years' experience.

ODD SHAPES? *you make...we like*

Rubber or plastic lining is economical life insurance for costly "special" equipment. It's a specialty with ACE. Write for *Bul. CE-53.*

PLASTIC VALVES *for matched systems*

Choice of Riviclor PVC, Ace-Ite rubber-plastic, Ace polyethylene or Ace Saran to match *any* plastic pipe. Sizes ½ to 2". Also larger plastic-lined valves.

PACHYDERMOUS PAIL

Ace-Hide, tough as a rhinoceros, insensitive to corrosives, makes this finest of acid pails. Also dippers, bottles, funnels, etc.

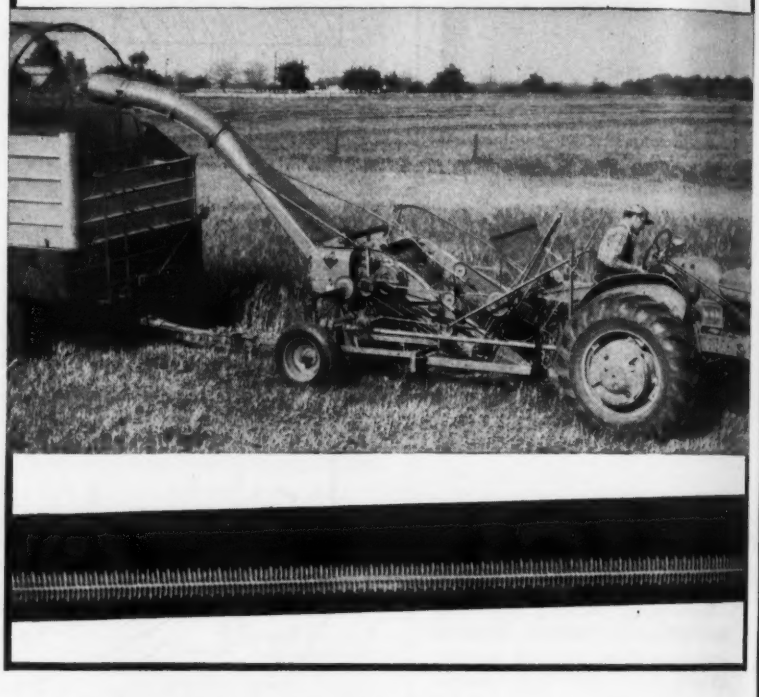
See our pages in the ACE Catalog!

ACE processing equipment of rubber and plastics

AMERICAN HARD RUBBER COMPANY
DIVISION OF AMERACE CORPORATION
Ace Road • Butler, New Jersey

5093 on Reader Service Slip

ALLIS-CHALMERS TAKES A LACING - TO IMPROVE PRODUCT QUALITY



Selects CLIPPER Hooks and Lacers for durability, easy installation, and smooth operation on small rollers

Allis-Chalmers Manufacturing Company of Milwaukee, one of the nation's leading manufacturers of farm machinery and equipment receives multiple benefits and improvement in product quality by their application of Clipper hooks and lacers on Forage Blower and Harvester feed table aprons and draper type pick-up belts.

They find in the Forage Harvester and Blower that Clipper lacing makes possible use of protective shields against the draper. On all applications drapers are easier to install, run more smoothly on small rolls and are more durable. The material laced is two-ply rubberized material from 15½ to 35¾ inches wide and from .060 to .090 inches thick.

For more information— *Detailed product information and case history examples of Clipper machine-lacing benefits are contained in Bulletin No. 157. Send for your free copy today.*

Ask your Industrial Distributor for Clipper Products

Clipper BELT LACER COMPANY
972 Front Ave., N. W., Grand Rapids 2, Michigan

5094 on Reader Service Slip

(Continued from page 63)

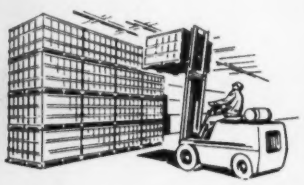
tractor models, which are illustrated.

Fourteen-page brochure, "The Inside Story of Yale Worksavers," is issued by Yale Materials Handling Div., The Yale & Towne Manufacturing Co., 11,000 Roosevelt Blvd., Philadelphia 15, Pa.

For your copy simply circle 5095 on Reader Service Slip.

Wirebound pallet boxes for bulk handling

Eight-page brochure illustrates wirebound pallet boxes in use in industry and agriculture for bulk-handling of products. Versatility of both re-usable and expendable boxes is shown.



Differences in construction features are also illustrated.

Booklet, "Wirebound Pallet Boxes for Every Bulk-Handling Requirement," is issued by Wirebound Box Manufacturers Association, 327 S. LaSalle St., Chicago 4, Ill.

For your copy simply circle 5096 on Reader Service Slip.

Horizontal and inclined belt conveyor details

Basic components for make-up of horizontal and inclined belt conveyors from stock parts are featured in four-page bulletin.

Among components diagrammed and illustrated are combination drive and take ups, end idlers, power feed sections, single and double nose-overs, return rollers, roller beds, slider beds and stands.

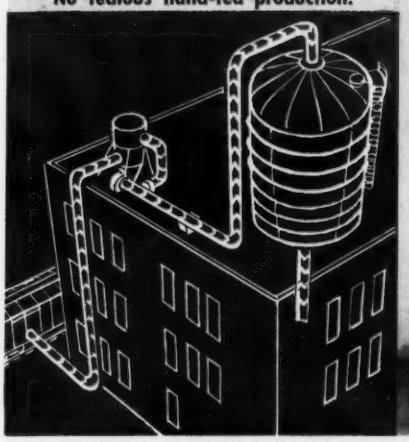
Catalog 80 on Series LM belt conveyors is issued by The E. W. Buschman Co., Clifton and Spring Grove Aves., Cincinnati 32, Ohio.

For your copy simply circle 5097 on Reader Service Slip.

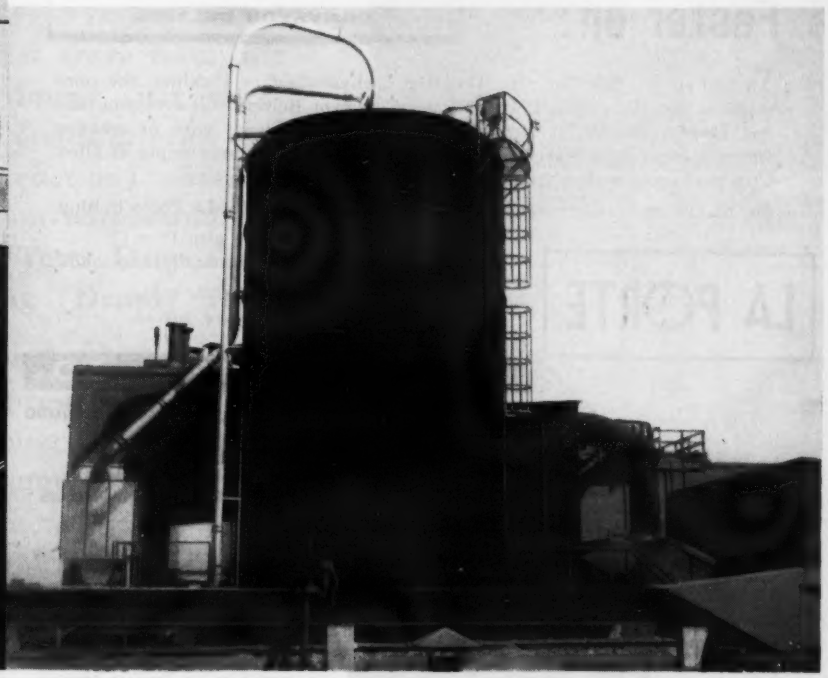
No time-consuming bag handling.

No costly in-plant trucking.

No tedious hand-fed production.



Materials-handling time cut 67%!



Candy-Maker* reports:

"sweet savings with Permaglas® Mechanized Storage Units"

Manual handling of a daily carload of sugar received in 100-lb. bags . . . extensive in-plant trucking to elevators and storage areas . . . these were the materials-handling problems facing this prominent candy maker.

Looking for a better way, the manufacturer designed an automatic system around an A. O. Smith *Permaglas* Mechanized Storage Unit. The sugar is pipe-conveyed by vacuum system from freight-car hoppers — up the side of a three-story building, across the roof and into the top of the *Permaglas* Unit. Mechanized sweep-arm bottom unloader — developed exclusively by A. O. Smith for *Permaglas* Storage Units — provides the first *reliable* method of feeding out tons of free-flowing bulk materials, such as sugar, rapidly and efficiently to the production line.

Requiring only three manhours per carload compared to nine manhours for bag handling — the system offers 67% savings in time alone. Moreover, because the *Permaglas* Unit is air-tight — and glass-lined inside and out — sugar is protected from contamination.

*Candy-maker's name available on request.

Through research A.O. Smith *. . . a better way*

A.O.Smith
CORPORATION

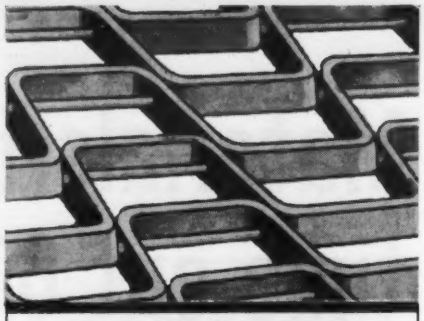
HARVESTORE PRODUCTS
Kankakee, Illinois
A.O.Smith INTERNATIONAL S.A., Milwaukee 1, Wis., U.S.A.

Fill-in and mail this coupon for FREE Bulletin No. MU-100 FP
See how these A. O. Smith *Permaglas* Mechanized Storage Units answer the problem of storing and handling hard-to-handle materials — granular, flaky or pulverized; hygroscopic, corrosive or contaminable, edible or non-edible.

Name .....
Title .....
Company .....
Address .....
City ..... Zone ..... State .....

5098 on Reader Service Slip

Wash · Drain · Cook · Freeze · Dehydrate Food Faster on:



LA PORTE
FLEXIBLE STEEL CONVEYOR BELTING

Whether you are Canning, Freezing, Dehydrating or Pickling, the open mesh construction of La Porte Flexible Conveyor Belting will save you time and money. Besides, it facilitates sterilizing with steam guns or scalding water, also provides a perfectly smooth surface for containers empty or filled. Cuts packaging and shipping costs, too.

For maximum service with minimum maintenance, specify La Porte Belting.

Available in ½" x 1" also 1" x 1" mesh in any length and practically any width.

Ask your Mill Supplier or write for illustrated literature, prices.

LA PORTE MAT AND MFG. CO.
BOX 124 Dept. A La Porte, Indiana

5099 on Reader Service Slip

modernize with
HydroLectric
A GREAT NAME IN LIFT TRUCKS

- Two driving wheels instead of one
- Braking with handle in any position
- Automatic parking brake (optional)
- Sealed alloy gears instead of chains
- Sealed ball-bearing rollers in masts
- 100% more steering ease with two wheel drive
- Power unit removal complete in 20 minutes
- Greater tire capacity equivalent load ratings

The only truck with 2 driving wheels and 2 braking systems. In fact Hydrolectric does everything a good lift truck should do.

LIFT TRUCKS, INC.
2409 Spring Grove Avenue
Cincinnati 14, Ohio

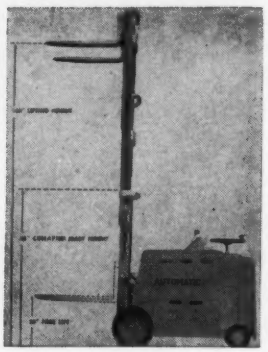
STUEBING *Designed Engineered • Built*

There is a truck for every purpose to handle any kind of material.

5100 on Reader Service Slip

NEW DEVELOPMENTS

design innovations, ingenious accessories improve performance, safety, ease of operation



Eye-level to "sky"-level . . . new mast has collapsed height of 68", can lift to 144", has 20" free lift. Full lift height is increase of 39 lift inches over standard 68" mast.

New mast is designed for 2000- and 3000-lb capacity trucks which move high-stacked goods from warehouse into low-ceiling highway trailers. This size lift truck is maximum which majority of trailer-truck beds can support.

Sky-Hi-Lift mast is manufactured by Automatic Transportation Company, Div. of The Yale & Towne Manufacturing Company, 101 W. 87th St., Chicago 20, Ill.

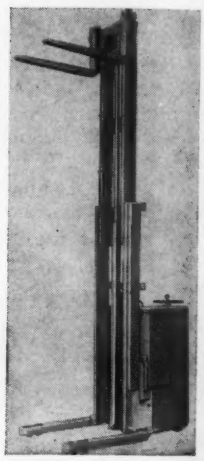
For more information circle 5101 on Reader Service Slip.

Faster for narrow aisles . . . new rider-type electric tiering truck incorporates 24-volt electrical system. Traveling speed empty is 4.5 mph; loaded, up to 4.2 mph. Lifting speeds are as much as 50 fpm empty; 42 fpm loaded.

With 40"-long load, unit will maneuver and high stack in aisles only 72" wide.

Three separate braking systems include dynamic braking for smooth stops when speed controller is returned to neutral; controlled plugging, allowing smooth reverse in travel direction by reversing speed controller; and deadman-type electric foot brake.

Other features include four speeds in both forward and reverse, all-welded unitized construction, lubricated for life bearings, high-pressure hydraulic system.



L-S 24-volt Model "MN" truck, offered in 2000- and 3000-lb capacities, is manufactured by Lewis-Shepard Products, Inc., 125 Walnut St., Watertown 72, Mass.

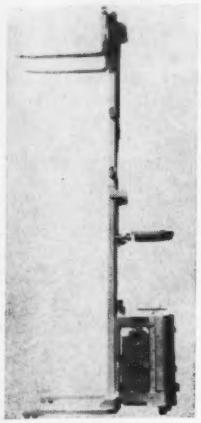
For more information circle 5102 on Reader Service Slip.

Negligible deflection . . . in elevating 4000-lb capacity loads throughout entire 192" range of elevation is due to heavier, redesigned uprights on new, narrow-aisle electric truck. Uprights also provide 40" more lift height than previous maximum.

New model operates in aisles as narrow as 78". Outrigger base legs, combined with 200° steering arc of patented offset drive wheel make practical such close-quarter maneuvering.

Tractor covers can be fully opened on piano-style hinges to expose all areas of power unit and controls for inspection or adjustment.

IN LIFT TRUCKS



High-stacking, narrow-aisle electric truck is manufactured by The Raymond Corporation, 329-165 Madison Ave., Greene, N.Y.

For more information circle 5103 on Reader Service Slip.

Built-in scales . . .

Uses: Scale system built into manual lift truck eliminates extra operation of wheeling truck and load to central scale, and of taring truck.

Features: In many operations, combination lift truck and scales can eliminate separate scale. Also functions as mobile in-plant scale.

Description: Special order unit can be built to accommodate certain types of operations only. Gross capacity to 12,000 lb.

Detecto Heavy Duty special lift truck scale is product of Detecto Scales Inc., 540 Park Ave., Brooklyn 5, N.Y.

For more information circle 5104 on Reader Service Slip.

Pallet Crates were subjected to a number of tests, including 10,000 lbs. of compression, a series of 4 ft. drops, and 120 falls in the revolving 14 ft. drum.

Comparative Tests Show Wirebound Pallet Crates Best

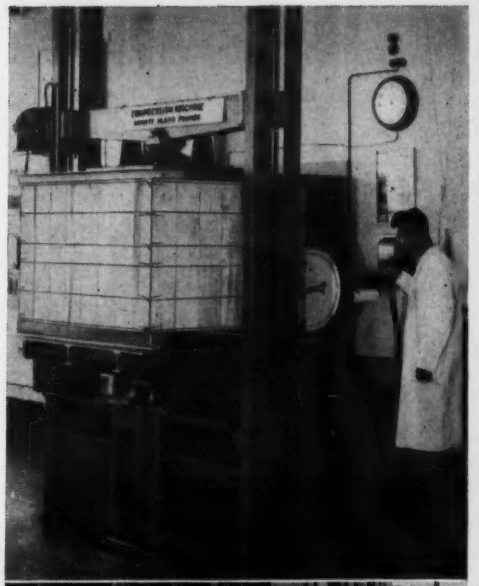
In comparative pallet crate tests just completed, it was found that wirebound pallet crates (both interior and exterior cleat construction) out-performed a leading non-wirebound design in Compression Tests, Drop Tests, and Rough Handling (Drum) Tests.

Wirebounds deflected less under 10,000 lbs. of compression, they distorted less after being dropped, and showed less failures under rough handling.

In actual use, wirebound pallet crates have slashed container costs by 50%, showed labor savings of up to 2/3, increased production, saved space by making high stacking safe, and protected contents from bruise.

Package Research Laboratory, Rockaway, New Jersey

Write for your free copy of "Bulk Handling Fruits & Vegetables in Pallet Crates".



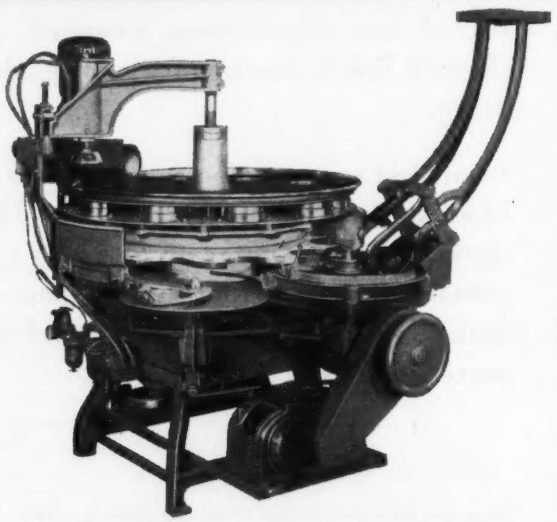
5105 on Reader Service Slip

Now you can save the cost of 3 or 4 hand packers

—when you install one FMC PRESS-PACK FILLER!

Here's the filling machine that takes the "high" out of "overhead." It replaces three or four pairs of hands, with obvious and important savings: it quickly pays for itself. And it goes on making money long after that.

In a nutshell, the FMC Press-Pack Filler employs adjustable telescopic measuring pockets, and a mechanical plunger that automatically presses the product into the can to an accurate, uniform, pre-determined fill weight. All this and a lot more we'd like to tell you about. Just write for full information, or call your FMC representative.



Fills whole beans in No. 10 cans at 20 to 30 cpm; cut beans at 25 to 35 cpm. Also adaptable to cans of smaller diameter at speeds up to 120 cpm. With some modification, ideal for sliced apples, sauerkraut, cut asparagus and other products requiring press-packing.

Putting Ideas to Work

FOOD MACHINERY AND CHEMICAL CORPORATION
Canning Machinery Division
General Sales Offices:
WESTERN: SAN JOSE, CALIF. • EASTERN: HOOPESTON, ILL.

5106 on Reader Service Slip

Printed adhesive pattern on metal surface of foil-paper laminate web is inspected for exact register by Dr. Kent R. Van Horn, left, director of Alcoa Research Laboratories, and Dr. M. A. Miller, chief of ARL's Foil and Packaging Division

'Printing' adhesive in precise pattern on foil surface lowers cost of sealing operation and makes available

Overwraps

NEW approach to overwrapping entails printing "hot melt" adhesives on aluminum foil-paper laminations for packaging such perishables as sugar, baked foods, cereals, crackers and frozen foods.

Method makes possible a hermetic seal that is both much more efficient as barrier against moisture, gases and infestation and less costly than seal provided by conventional all-over wax coating method.

Process involves a single-impression printing operation wherein an exact pattern of adhesive is applied to foil side of overwrap web (note photo above).

Because adhesive is on foil side, both metal-to-metal and necessary metal-to-paper areas can be sealed.

When adhesive is on paper side of a lamination, as with conventional methods, only coating-to-coating and paper-to-foil seals can be made. Considerable metal-to-metal areas on side and end folds remain without adhesive.

Basic tool of the sealing process is a small printing machine. Unit is attached in tandem with any roll-fed overwrapping machine, and feeds on demand.

Present model is designed

that protect like rigid cans

for maximum web width of 14¾", though units that will take up to 24" web width are in design stage.

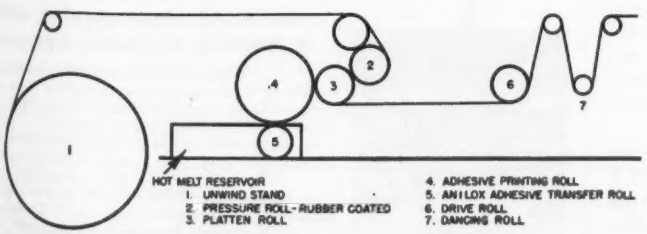
In experimental runs, unit has successfully handled a variety of laminated structures, including some that show an economic as well as functional advantage over current most popular laminations. Machine also prints adhesive on foil overwrap.

Hot melts used with unit can be formulated to allow great flexibility for varying package requirements. Alcoa-developed adhesives used to date have high-blocking temperature, permitting efficient rewinding of foil.

Ten of the machines are undergoing final test runs on commercial packaging lines. Latest modification is application of heavier adhesive coating than 3-mil thickness — for overwrapping of "soft" cartons.

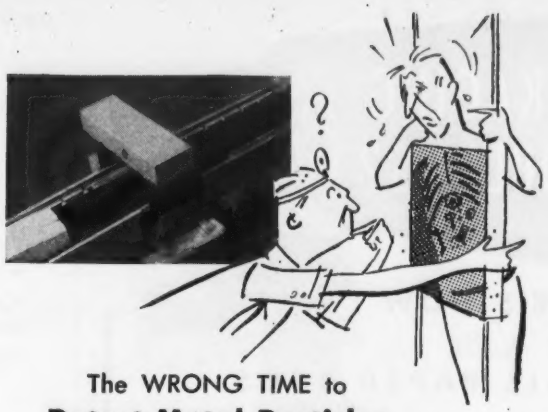
"Pacon" adhesive printing machine, developed by Pacon Research and Development Corp., New York City, in cooperation with Aluminum Company of America, is being introduced commercially by ALCOA, 1501 Alcoa Bldg., Pittsburgh 19, Pa.

For more information circle 5107 on Reader Service Slip.



Wrapper is fed from unwind stand, through imprinting section and drive rolls, and out over a dancing roll. Latter controls running speed of unit through a hydraulic transmission and allows the machine to feed on demand of the overwrapping machine, either intermittently or at variable continuing speeds.

Adhesive is picked up by fountain roller and transferred to the heat-resistant, resilient adhesive printing roll. Latter, in turn, prints foil side of overwrap with adhesive pattern in preselected thicknesses from 3/10 mil to 3 mils. Pattern is registered in proper position for subsequent cut-off and sealing by electric eye



The WRONG TIME to
Detect Metal Particles

Unless you use a device that unfailingly detects *all metal* particles *before* your food products leave the process line, your customers (or their doctors) are likely to find them. The dependable solution to this quality-impairing problem is an Allis-Chalmers electronic metal detector. Magnetic or non-magnetic metal particles, no matter how deeply embedded, immediately trigger a warning or reject mechanism when they pass the Allis-Chalmers metal detector.

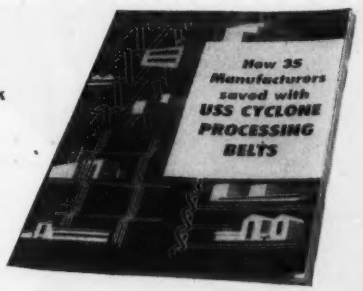
This device is compact, economical to operate, permits conveyor speeds to 600 fpm, and is easily incorporated into any production setup. Ask your local A-C man for Bulletin 15B7217B, or write Allis-Chalmers, Industrial Equipment Division, Milwaukee 1, Wisconsin.

ALLIS-CHALMERS A-5631

5108 on Reader Service Slip

USS **Cyclone Metal Conveyor Belt**
washes spinach cleaner, faster, cheaper!

By eliminating uncertain and expensive hand washing and using a Cyclone Conveyor Belt to carry spinach through water sprays and air blasts, this New York restaurant gets a cleaner vegetable; cuts down operating costs.



More details on this time- and money-saving story are reported in the Cyclone booklet, "How 35 Manufacturers Saved with USS Cyclone Processing Belts." Send coupon for your free copy.

Five Basic Belt Types—Cyclone Fence makes the greatest variety of belts in the industry—spiral woven chain drive, spiral woven friction drive, flat wire friction drive, flat wire sprocket drive and flex-grid. They are available in a variety of metals, alloys and finishes. They are strong, sturdy, highly resistant to the effects of chemicals, oils, water or temperatures. Their open-mesh construction makes them readily cleaned and sanitary—permits good circulation of air or heat.

USS and Cyclone are registered trademarks

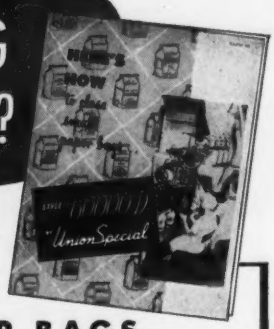
Cyclone Fence Dept.
American Steel & Wire
Division of
USS United States Steel

Manufactured at Waukegan, Ill. and Oakland, Calif. • Sales Offices, Coast to Coast

WRITE FOR BOOK—
Cyclone Fence, Dept. K98' American Steel & Wire, Rockefeller Bldg., Cleveland 13, Ohio
WRITE BELOW
NAME ADDRESS CITY STATE

5109 on Reader Service Slip

PACKAGING PROBLEMS?



HERE'S HOW *to close* SMALL PAPER BAGS

Send for this interesting, illustrated BULLETIN No. 100 showing how the Union Special *Style 60000 D* bag closing machine can help you solve many packaging problems:

- **FAST**—Speed to match output of standard filling and weighing equipment.
- **NEAT**—Produces an eye-pleasing sales-stimulating package with high merchandising value.
- **ECONOMICAL**—Operating cost per bag is at a minimum . . . uses inexpensive cotton thread and paper tape.
- **VERSATILE**—Adjustable for a wide range of bag sizes, short or long runs.

Write for BULLETIN No. 100 to get the complete facts on this machine . . . and how it can do a *better* closing job for you.

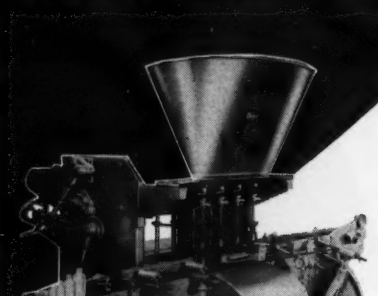
"DUBL-TAPE" CLOSURE

Union Special® MACHINE COMPANY
432 N. Franklin St., Chicago 10, Illinois

5110 on Reader Service Slip

VERSATILE · ACCURATE MULTI-LINE FILLER

ESTABLISHED Hope SINCE 1908



TYPE 19A

The 4 line model accurately fills 50 to 100 containers per minute . . . 6, 8, and 10 line models also available capable of *accurately* filling up to 250 containers per minute. Hope Type 19A Filling Machines are now in *profitable* use from coast-to-coast, filling liquids, semi-liquids, or viscous products in jars, plastic bottles or tin cans. For high speed, accurate filling machines look to the leader —

Write for catalog of our complete line

HOPE MACHINE COMPANY
9400-20 STATE ROAD • PHILA. 14, PA.

5111 on Reader Service Slip

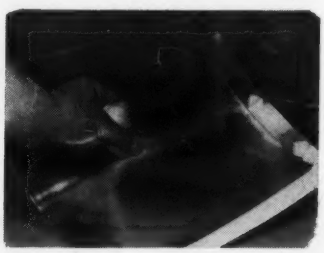
Laminating adhesive allows

odor-free metallic wraps

without sacrificing water- and heat-resistance; bonds aluminum foil to all types of paper and board stocks

Uses: Adhesive has proved satisfactory for aluminum foils 0.35 up to 2.5 mils thick on natural kraft, wet-strength bleached stocks, paperboards, bleached natural kraft and glassine papers.

Features: For such moist, odor-absorbing products as margarine and cheese, odor-free adhesive makes possible



Foil and paperboard lamination incorporating "Foylam" has 100% fiber tear, shows no signs of blistering or delamination after repeated 5-sec exposures to 400°F and 40-lb pressure in heat-sealer

packages which combine external sales appeal of foil with inner strength and protective qualities of paper or board lamination.

Description: Adhesive is a polymerized and compounded synthetic resin emulsion having water- and heat-resistance properties formerly attainable only with adhesives compounded from synthetic rubber latices.

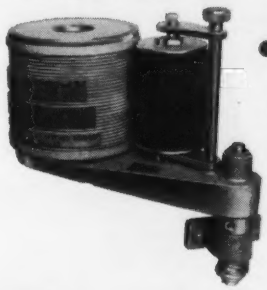
High heat resistance allows adhesive to withstand 400°F for 25 min without blistering or delaminating. It will withstand freezing temperatures down to −40°F indefinitely. Bonding strength is high, with a constant, fiber-tearing bond.

Adhesive is characterized by low dry coating weight (0.4 to 0.7 dry lb per 1000 sq

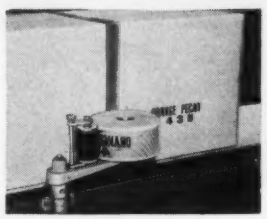
Always the best...now even better

NEW forward-design **ROLACODER**

AUTOMATIC CASE MARKING AND CODE-DATING ATTACHMENT



Holds enough ink for a week!



Write today for full details about the new "Series 300 Rolacoder" case-marking attachment

- Extra compact—adaptable to any conveyor, case-sealer, etc.
- Simplified construction—trouble-free performance
- Precision-built—assures sharp uniform imprints up to 3" deep, *accurately* located on case after case
- Swing-out mounting for easier maintenance
- Patented "Metalok®" type base holds type more securely, makes copy changing easier

First and foremost in automatic production-line CODING, MARKING and IMPRINTING machines

Gottscho

GOTTSCHO
Dept. V
HILLSIDE 5, N.J.

In Canada: Richardson Agencies, Ltd. • Toronto & Montreal

5112 on Reader Service Slip

QUESTION: **With thousands of square feet how can we cut time wasted in waiting for power units?**

ANSWER:

If travel pattern can be predetermined, you'll always have power and trucks at your service with a Nutting Dragline System.

With an overhead or under-floor conveyor you can have a complete fleet of inexpensive Nutting trucks constantly at work . . . ready to load or empty . . . and being *moved without an operator.* No need to wait . . . and just compare the low cost of running an electric motor against the high wages of an ordinary power truck operator. Look under "Trucks," "Casters" or "Materials Handling Equipment" in the yellow pages for your Nutting representative . . . or write us for your Nutting Material Handling Systems Bulletin.

Solving Materials handling problems since 1891.

Nutting TRUCK & CASTER CO.
3226 Division St., Faribault, Minn.

5113 on Reader Service Slip

ft), and excellent machining stability. It has been run from 200 to 500 ft per min, depending on foil thickness and nature of the paper substrate.

Wet shelf stability allows storage for a minimum of 120 days under normal conditions.

Product is available as a white liquid in 5-gal containers, 30- and 55-gal drums, tank wagons and tank cars. Range of viscosity is from 500 to 5000 cps, and of solids content from 30 to 50 per cent. Price is competitive.

"Foylam" odor-free adhesive for aluminum foil wraps is development of Morningstar-Paisley, Inc., 1770 Canalport Ave., Chicago 16, Ill., and 630 W. 51st St., New York 19, New York.

For more information circle 5114 on Reader Service Slip.

Purges 99% of oxygen from packaged powders

Floods product with tasteless, odorless inert gas at rate of 300 containers per min

Uses: By flooding packages of powdered products before capping, this unit flushes out the air, hence oxygen, they contain. Prime result is a longer shelf life.

Because no appreciable quantity of oxygen is left in contact with the product, it is protected against loss of flavor, aroma and other qualities. This is especially true of products liable to oxidative rancidity.

A sampling of current production uses includes powdered cream, coffee, wheat germ, grated cheese and even light fluffy pharmaceuticals.

Features: Capable of operating at 300 containers per minute, the purging machine injects inert gas so gently that no powder is blown from the container. Tests show less than one per cent oxygen remaining, consistently.

Description: Much like a rotary capper in appearance, the purger occupies four feet of packaging line. It will han-

(*Continued on next page*)

"...and they save us twelve dollars a foot!"

Colorful H&D corrugated boxes with attractive point of sales messages are ready-made for profitable mass display. They merchandise your product quickly, effectively...save the grocer as much as $12 to $15 a running foot over conventional shelving. Like to know more about making a good impression at the retail store level? Send coupon for new four-color booklet, "How To Use Printing On Corrugated."

HINDE & DAUCH
Division of West Virginia Pulp and Paper Company
Sandusky 3, Ohio

Please send new H & D booklet,
"How To Use Printing On Corrugated."

Name_____ Title_____

Company_____

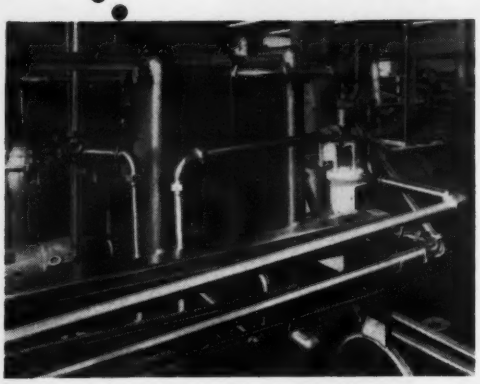
Address_____

5115 on Reader Service Slip

your **master key**
to trouble-free
cost-saving
STAINLESS
SANITARY
TUBING

more than corrosion resistance

Carpenter



available through Cherry-Burrell and associated distributors or your Carpenter representative.

The Carpenter Steel Co.
Alloy Tube Division, Union, N. J.

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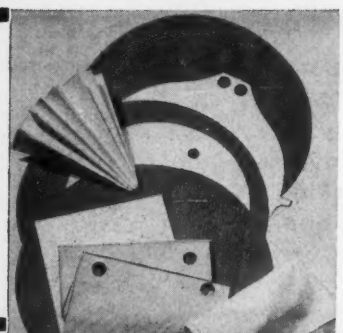
FILPACO

FILTER MATERIALS
Will help YOU with your particular filter requirements



• **FILTER PAPER** quickest service, latest converting equipment and most complete range of grades guarantees filter paper to meet any requirements. **SAMPLES FURNISHED** for testing . . . or send us your materials for testing.

• **FILTER CLOTH** cotton, wool felt, glass, Orlon, Nylon, silk, Dacron, polyethylene, Filyon, Saran and other synthetics cut and sewn to required shapes and sizes . . . variety of weaves, weights, finishes.

We invite your inquiries

FILPACO INDUSTRIES
THE FILTER PAPER CO.
2436 S. Michigan Avenue, Chicago 16, Illinois

5133 on Reader Service Slip

EFFECTIVE TANK CLEANING

New bulletin describes Sellers RotorJet, "World's newest, most effective tank cleaner".

Bulletin describes how Sellers Rotor Jet completely cleans tanks, tank cars, tank trucks in far less time—regardless of size or shape. Also tells in detail of automatic operation and varied applications. Specifications include pressures, capacities, vital data.

SELLERS Injector CORPORATION
1601N Hamilton St., Philadelphia 30, Pa.
Since 1848

FREE! Write today for your copy of Bulletin 432.

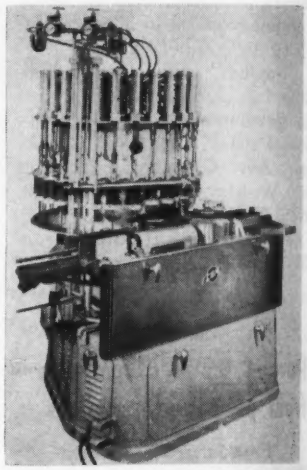
5118 on Reader Service Slip

packaging

(*Continued from preceding page*)

dle bottles from 2¼ to 3¼" in diam, 4⅜" to 6¼" in height.

Incoming bottles are synchronized with sealing pads which descend to meet them. As they are carried around the unit, a purge tube is lowered to the bottom of each. A steady flow of inert gas (typically nitrogen) begins through numerous small holes near the tube's bottom.



Residual oxygen in containers purged by this unit is consistently less than one per cent

Controlled gas flow plus a fine mesh screen in the seal pad account for product retention.

When tube is withdrawn, the container is passed along to an oxygen-free enclosed capping unit. While existing cappers can be modified to meet requirements, a specially designed unit is now in development.

Entire unit can be placed in a five foot square of floor space. Its 2-hp self-braking motor is equipped with variable-speed drive.

Crown 28 Rotary Purging Machine is a development of Crown Cork & Seal Company, Inc., 1200 Newkirk St., Baltimore 24, Md.

For more information circle 5117 on Reader Service Slip.

This month's best new
PRODUCTS AND PACKAGES
See pages 12-13, 16

New food-quality overwrap

Cast polyethylene film

- Costs 15% less than cellophane, goes 50% further
- Several food packagers testing; equipment available

Uses: Film will overwrap such varied food products as bread and other baked foods, tea, crackers, candy, frozen foods, cheese and other dairy products, fresh meats and fresh vegetables.

Features-Description: Crystal-clear film is free of the haze common to most polyethylene films. It can be readily treated for printing, though work is underway to

Greater toughness and better moisture-protection qualities than other currently used food overwrapping materials are claimed for new film

increase printing speeds, as well as to improve registration of colors on surface which tends to stretch.

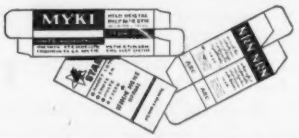
Compared with cellophane — currently most widely used transparent overwrap for foods — cast polyethylene enjoys two-fold price advantage.

Price per lb is 15 per cent below cellophane's. In addition, new film goes further — one pound of one-mil thickness covers about 30,000 sq in, as compared with only 20,000 for cellophane of equal thickness.

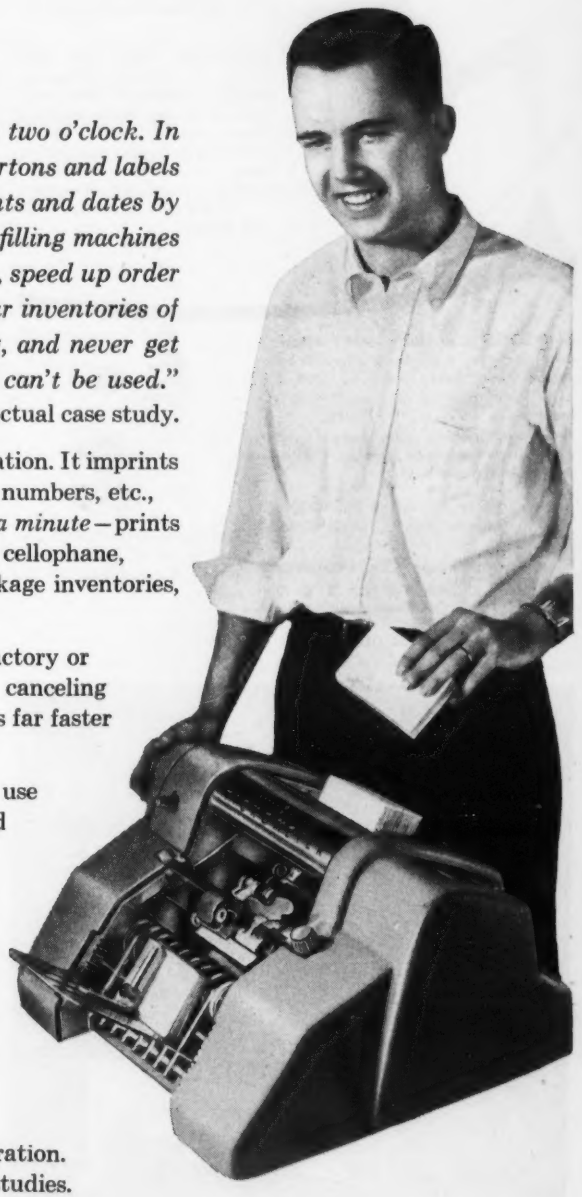
Produced on equipment similar to that used by ex-

(*Continued on next page*)

"We imprint 'em ...as we pack 'em!"



"I usually get tomorrow's production schedules by two o'clock. In less than an hour I have ready all the small cartons and labels needed for the next day – imprinted with codes, weights and dates by our Tickometer. They're waiting for the girls and filling machines first thing in the morning – save down time and lags, speed up order filling and shipping. We've been able to cut our inventories of pre-printed materials by 85%, save on printing, and never get stuck with printed packages and labels that can't be used."
– From an actual case study.



• A Tickometer is invaluable in any packaging operation. It imprints codes, weights, expiration dates, colors, sizes, serial numbers, etc., on small flat cartons or labels at speeds up to 1,000 *a minute* – prints on most paper weights and finishes, light card, foil, cellophane, plastics. It helps avoid production delays, cuts package inventories, reduces printing costs.

• It also saves time and work in other areas of a factory or office in marking, stamping, endorsing, dating and canceling forms, checks, coupons, tags, tickets, cards, etc. It is far faster than any manual worker.

• The Tickometer also *counts* – is so accurate banks use it to count currency! It can be set for predetermined quantities, gives partial amounts or totals, can be equipped for consecutive numbering. It supplies figures faster, makes records available earlier.

• It gives exact registration on an impression surface 2 3/16 by 7/8 inches, handles sizes up to 15 by 15 inches, depending on the model. Feeds and stacks automatically, is easy to operate, can be used by anybody. Rented or sold, with PB service always nearby, from 302 points, coast to coast.

• Ask the nearest Pitney-Bowes office for a demonstration. Or send coupon for free illustrated booklet and case studies.

Pitney-Bowes

TICKOMETER

Imprinting & Counting Machine

Made by the originator of the postage meter... offices in 107 cities in U.S. and Canada.

PITNEY-BOWES, Inc.
5842 Walnut Street,
Stamford, Conn.

Send free Tickometer booklet and case studies

Name _____

Address _____

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use SLIPICONE silicone release agent

ON ALL FOOD PROCESSING EQUIPMENT

SLIPICONE® makes sticky spots slick . . . prevents adhesives, packaging materials, foods and food products from sticking where they're not wanted. SLIPICONE keeps equipment clean, cuts downtime and maintenance costs, speeds operations . . . SLIPICONE saves you time and money!

SLIPICONE is nontoxic, won't attack any surface, and is unaffected by temperatures from —40° to 400° F . . . won't gum-up or run-off equipment when heated. Try SLIPICONE, the Dow Corning silicone release agent, now . . . and give your sticking problems the slip!

Just spray or wipe it on: Sold in 12 oz. aerosol cans, 2 and 8 oz. tubes, 10 lb. cans.

Write for list of SLIPICONE distributors . . . Dept. 579a.

Dow Corning CORPORATION MIDLAND, MICHIGAN

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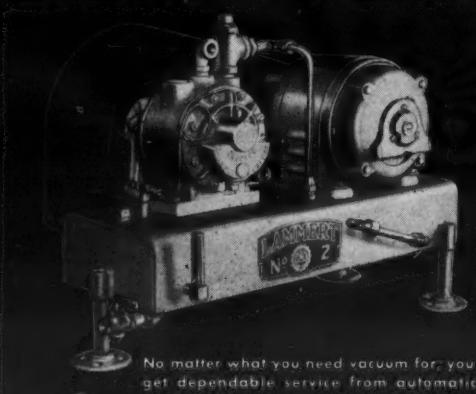
VACUUM

LAMMERT PUMPS



No matter what you need vacuum for, you will get dependable service from automatically lubricated Lammert pumps. Capacities—4.3 to 225 cubic feet per minute. From medium to high vacuum (up to 20 microns of barometer).

Write for catalog showing the complete line, including specifications, of Lammert pumps and compressors.

LAMMERT & MANN CO., INC.

1753 Walnut Street, Chicago 12, Illinois, SEeley 3-0383

5121 on Reader Service Slip

packaging

(*Continued from preceding page*)

trusion coaters, rather than conventional film extruders, film gives evidence of surmounting problems of production speed and heat sealing. Until now, these factors have held back polyethylene's use for food overwraps.

At least four manufacturers are now producing equipment which minimizes these difficulties and makes commercial use of cast film appear practical.

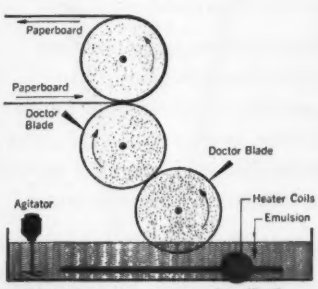
"Petrothene"® cast polyethylene film, currently being produced by three extruders, is development of U.S. Industrial Chemicals Co., Div. of National Distillers and Chemical Corp., 99 Park Ave., New York 16, N.Y.

For more information circle 5122 on Reader Service Slip.

Antioxidant wraps extend shelf life of fat-foods

Effective even if product is already stabilized against rancidity

Twelve-page brochure details how antioxidant-treated packaging materials can extend shelf life of fat-containing foods.



Typical arrangement of rolls for applying antioxidant emulsion to paper by roll-coat technique

When product is packaged, increased oxidative rancidity develops through 1. absorption of fat by packaging material; 2. trace metal pickup; 3. air entrapped around product; and 4. light transmittal.

By incorporating BHA (bu-

(*Continued on page 78*)

Cut Costs with SEALTITE

- Delivers a well settled, nicely squared bag at top, bottom and sides
- Pre-scored, double fold, uniformly glued seal keeps product in and dirt out
- Uses any standard make of gusseted bag — no royalties
- Seal readily opened, yet tamper-proof
- Seals 30 to 50 bags per minute
- Users report costs reduced up to $500.00 per month per machine

Write for complete information

CONSOLIDATED PACKAGING MACHINERY CORP. BUFFALO 13, N.Y.

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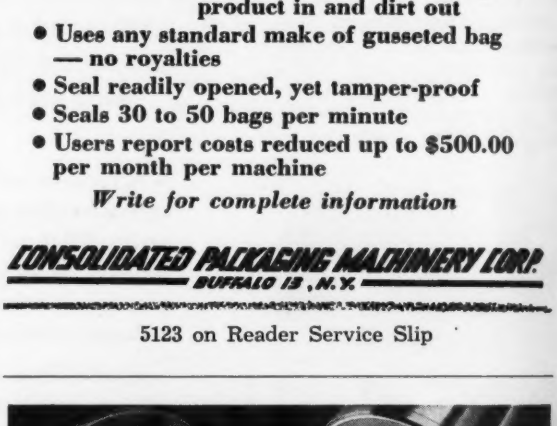


Hackney Stainless Steel Crevice-Free Food Containers

- Meet local, federal maximum sanitary regulations
- Welded foot ring curl and top curl crevices
- Seamless type construction
- Made to resist years of hard service
- 30-, 55-gal. sizes—8 models; 2 types of covers available
- Plain and soldered-crevice models for less critical service

Send for complete details. Write:

Hackney Pressed Steel Tank Company

Manufacturer of Hackney Products

1459 S. 66th Street, Milwaukee 14, Wisconsin

Branch offices in principal cities

CONTAINERS AND PRESSURE VESSELS FOR GASES, LIQUIDS AND SOLI

5124 on Reader Service Slip

Association news

13th Annual Instrument-Automation Conference

will feature an address on Russian instrumentation education by a leading Soviet educator. At Data Handling Workshop, nine industrialists from instrumentation-automation field will lead discussions on present and future use of automatic controls and push-button mechanisms.

Sixty experts will participate in workshop on "Cost Reduction through Better Instrument Maintenance Management." Maintenance Clinic will consider proper installation, operation and maintenance of instruments and controls on present day processes, and how to promptly diagnose process troubles.

"Packaging, Handling and Shipping Week"

Oct. 12-18, has been proclaimed for Chicago by Mayor Daley. During that week, the SIPHME-sponsored annual triple-feature event will include: the 13th Annual Packaging, Handling and Shipping Show; the yearly Technical Short Course; and the annual National Protective Packaging and Materials Handling Competition.

The show and competition will be held at Chicago Coliseum; the short course at the nearby Y.M.C.A. hotel.

In addition, Packaging Institute, Inc., of New York City, will hold its annual Forum at Chicago's Edgewater Beach Hotel during that week.

Short Course topics will include: export packaging and loading, organizing and equipping the shipping room, car loading and bracing, air freight packaging, new types of dunnage for car- and truck-loading and use of materials handling equipment in warehousing and loading.

(*More on page* 93)

For more information on product at right, circle 5125 see information request blank opposite last page.

GAYLORD PILOTS YOU TO JET-AGE PACKAGING

Looking for ways to up-date your packaging procedures? Your Gaylord pilot can help you speed production, increase product protection and improve promotion. At down-to-earth packaging costs.

Precision corrugated boxes by the millions or engineered packaging. Gaylord is skilled in both. Case histories? Roger and over . . . to your G-Man.*

**Your Gaylord Man—of course*

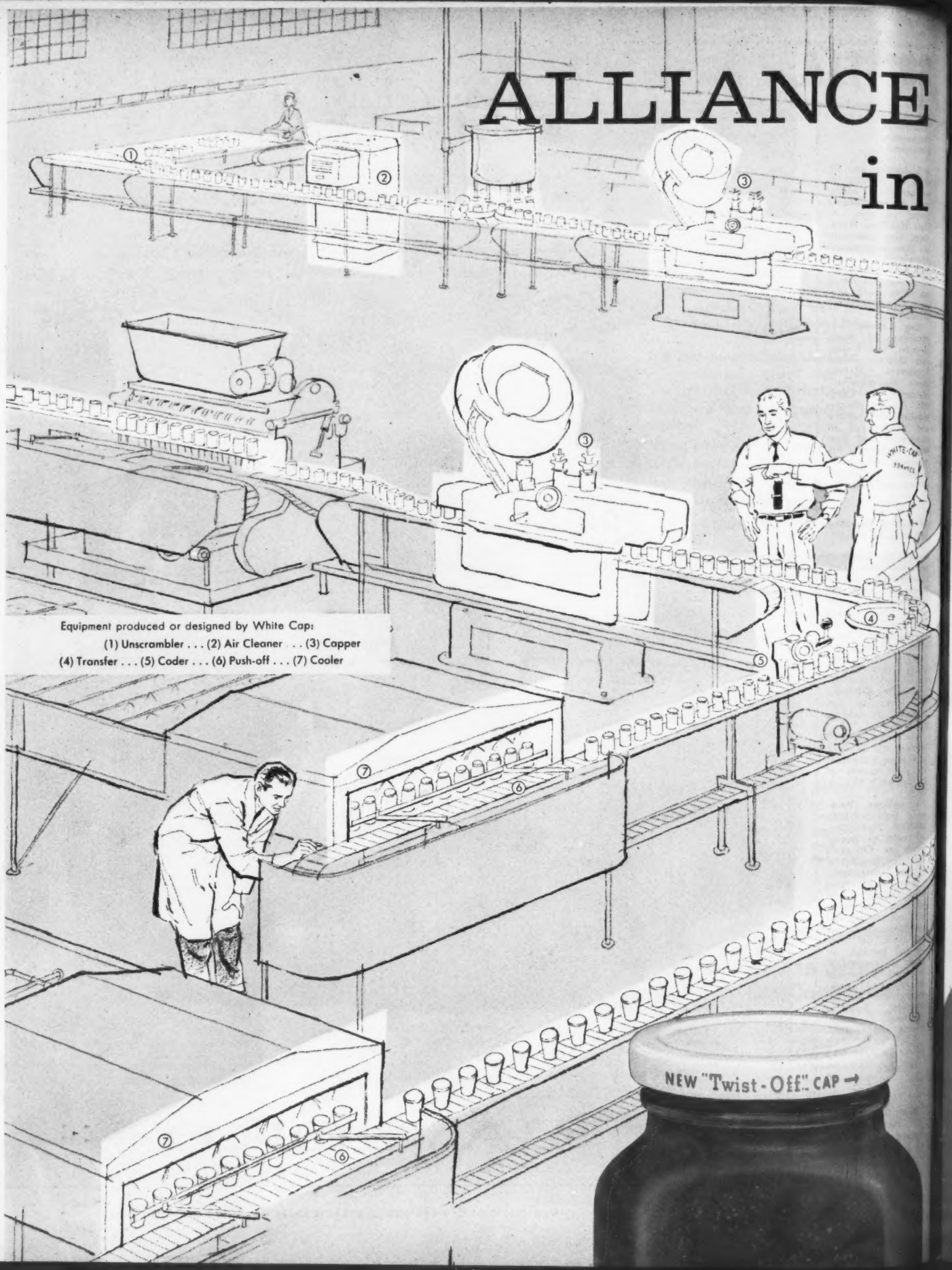
GAYLORD CONTAINER CORPORATION

Gaylord Boxes

HEADQUARTERS, ST. LOUIS
PLANTS COAST TO COAST

DIVISION OF **Crown Zellerbach Corporation**

ALLIANCE in



Equipment produced or designed by White Cap:
(1) Unscrambler . . . (2) Air Cleaner . . . (3) Capper
(4) Transfer . . . (5) Coder . . . (6) Push-off . . . (7) Cooler

for progress preserve packaging

...another look at the influence of White Cap's creative services; in this case, an inspection of the situation in leading preserve packaging plants

The tremendous present-day popularity of Vapor-Vacuum caps for preserves is not, by any means, only a matter of cap preference.

The fact is that Vapor-Vacuum's unparalleled position in the preserve industry is built, first of all, on the efficiency and economy which White Cap services have helped to engineer into the modern preserve packaging line.

High-speed preserve operations, nowadays, are based largely on a combination of the help which **Vapor-Vacuum sealing** gives the package and the help which **White Cap services** give the packaging line.

Over the years, a powerful partnership

One of the major examples of the White Cap influence on plant efficiency is today's highly compact and efficient spray-cooling method—originated by White Cap and used in nearly all high-speed plants.

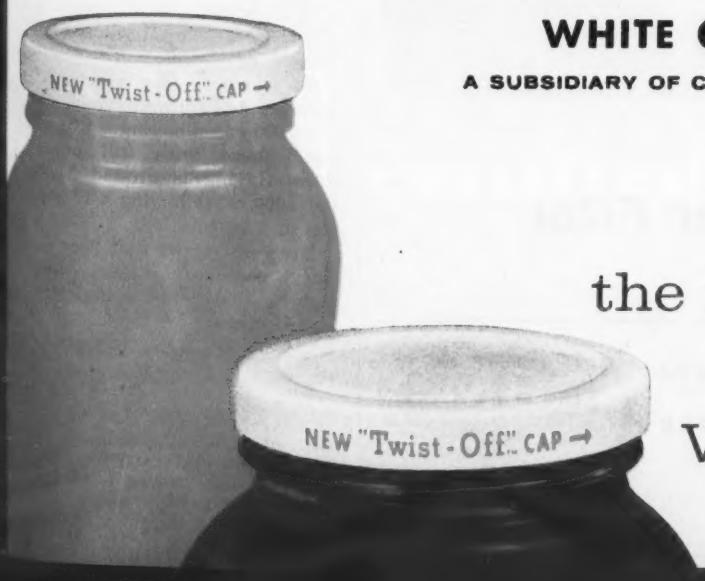
Improvements in speed and efficiency of handling at many other points on the preserve lines give further evidence of the wholesome and widespread influence of this company's services.

And at the sealing stage, of course, White Cap equipment and services have long had the major role in advancing production and economy.

It's a powerful partnership, this alliance of the preserve packers and the creative engineering forces of their major supplier! In large measure, it accounts for the admirable situation of today's preserve packing lines—and adds assurance to their future.

WHITE CAP COMPANY

A SUBSIDIARY OF CONTINENTAL © CAN COMPANY



the irreplaceable ingredient is White Cap Service

Now! Vacuum-pack foods in "Scotchpak" Polyester Film!

"SCOTCHPAK" BRAND HEAT-SEALABLE POLYESTER FILM offers advantages such as these to food processors:

"SCOTCHPAK" Film is *tougher!*—it holds a positive vacuum without leakage . . . prevents discoloration of contents. Not a laminate, but an exclusive development of 3M Company research, "SCOTCHPAK" Film resists freezing cold and boiling heat . . . yet can be heat-sealed at 300° to 400°F.—and gives the strongest heat-seal of any packaging film. It blocks out ultra-violet rays adding to the shelf life of any food product.

"SCOTCHPAK" Film is *attractive!* Crystal-clear "SCOTCHPAK" helps food products look their best on the shelf or in the freezer. It remains clear under freezing . . . can be printed if you desire.

Available in a 2-mil thickness in rolls up to 50 inches wide. For complete facts and figures on packaging food with this dramatic new film development, write 3M Co., St. Paul 6, Minn., Dept. RD-98.

"SCOTCHPAK" is a registered trademark of 3M Co., St. Paul 6, Minn.

REG. U.S. PAT. OFF.
SCOTCHPAK BRAND *Polyester Film*

MINNESOTA MINING AND MANUFACTURING COMPANY
. . . WHERE RESEARCH IS THE KEY TO TOMORROW
3M COMPANY

5126 on Reader Service Slip

(*Continued from page 74*)

tylated hydroxyanisole) and BHT (butylated hydroxytoluene) in wrapping paper, effects of these factors are reduced. Antioxidants are incorporated in emulsion applied to surface of paper or board.

Tests show that shelf life can be increased for certain foods even though product itself has been stabilized against oxidative rancidity.

Series of tables show shelf life results for cereal, margarine, potato chips, candy and pastry packaged in treated and untreated wraps. Properties of BHA and BHT are also discussed.

Booklet, "Tenox antioxidants for more effective food packaging materials," is issued by Eastman Chemical Products, Inc., Subsidiary of Eastman Kodak Co., Kingsport, Tennessee.

For your copy simply circle 5127 on Reader Service Slip.

Will 'gap-flap' cases save you money?

Brewers say "Yes." But shortened flaps weaken case, may increase shipping damage for others

Brewers' Experience: Several brewers have reported substantial savings in cost of cases for shipping canned beer. Cases have shorter flaps which, when closed, leave a 1" or more gap on top and bottom of the case.

Savings in fiberboard amount to approximately $2 per 1000 cases having a 1" gap over those with full outer flaps. Saving is around $4.50 per 1000 cases having a 2" gap top and bottom.

Brewers report that beer in the "gap-flap" cases cools faster than in completely closed cases.

(*Continued on page 81*)

For more information on product at right, circle 5128 . . . see information request blank opposite last page.

ATLAS certified colors

Industry's Standard for Over 100 Years

FIRST PRODUCERS OF CERTIFIED COLORS

H. KOHNSTAMM & COMPANY Inc.

ESTABLISHED 1851

89 PARK PLACE, NEW YORK 7 · 113 E. ILLINOIS ST., CHICAGO 11 · 2632 E. 54 ST., HUNTINGTON PK., CALIF.

BRANCHES IN OTHER PRINCIPAL CITIES OF THE U.S.A. AND THROUGHOUT THE WORLD

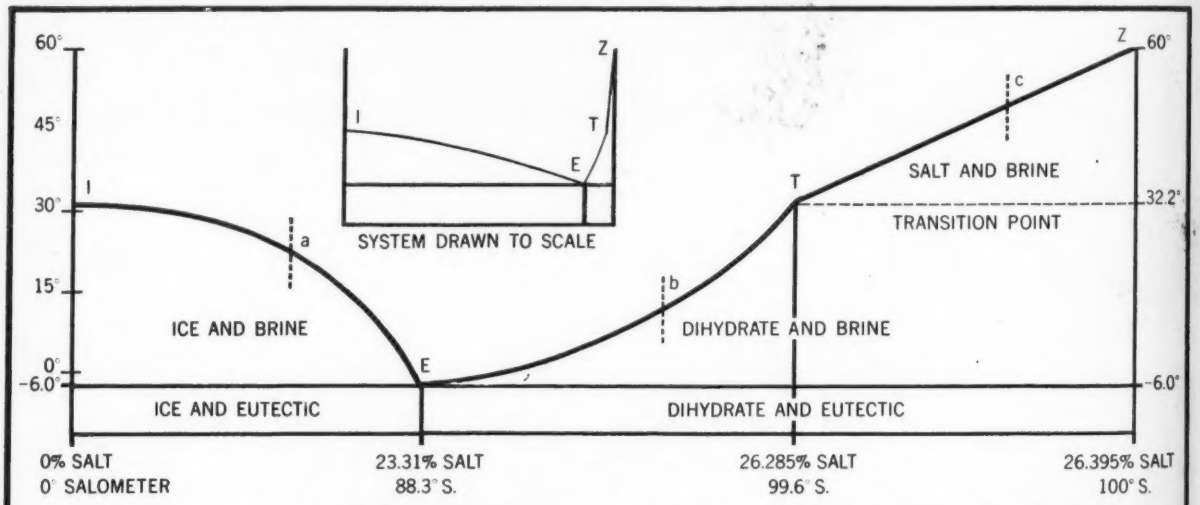
Using Salt Efficiently

by INTERNATIONAL SALT COMPANY, INC.

How to Calculate Effects of Freezing Temperatures on Brine

Every plant that refrigerates with brine, or that makes, stores or uses brine in cold, unheated places can benefit from knowing what happens to brine at freezing temperatures. Information on brine freezing characteristics is helpful in determining the best brine strength for particular temperatures . . . in designing facilities for most efficient use of brine at low temperatures . . . and in dealing with other problems of brine usage in the plant. **As a quick reference** on these matters, International Salt Company has prepared this data on brine behavior at low temperatures.

3 ranges of brine concentration. For purposes of this explanation, three different brine-strength ranges must be considered: Range I brine, between 0° S. and 88.3° S.; Range II brine, between 88.3° S. and 99.6° S.; and Range III brine, between 99.6° S. and 100° S. Freezing temperatures produce different effects on each range of brine strength. These effects are explained in the following graph.



RANGE I—less than 88.3° S. Brine at less than 88.3° S. has a lower freezing point than water. When this point is reached ("a" on graph, for instance), pure water separates out as ice, leaving the liquid phase more concentrated with salt. If the temperature drops further, more ice will separate out, leaving the liquid with a still higher salt concentration. At -6° F., there is a mixture of pure ice and brine of 88.3° S. As more heat is removed, this mixture freezes into a solid mass of ice and "eutectic"—the latter a composition of 23.31% salt and 76.69% water.

RANGE II—88.3° S. to 99.6° S. When a brine between 88.3° S. and 99.6° S. drops below 32° F., it stays liquid until a certain temperature is reached ("b" on graph, for example). At this point, crystals of sodium chloride dihydrate begin to form. The dihydrate is composed of 61.863% salt, only 38.137% water. As the temperature drops further, more dihydrate separates out . . . and the remaining brine gradually *weakens* until it becomes 88.3° S. at -6° F. At this point, the mixture of brine and dihydrate crystals freezes solid into eutectic and dihydrate.

RANGE III—99.6° S. to 100° S. When brine is between 99.6° S. and 100° S., pure-salt crystals start to separate out at some temperature between 60° F. and 32.2° F. ("c" on graph). This is because the cooler the brine, the less salt it can hold. When this mixture of salt and brine drops below 32.2° F., dihydrate forms, as it does in Range II brines. With dihydrate removing more salt than water, the weakened brine can then dissolve the pure salt. This goes on until -6° F., when once again the mixture freezes into a solid mass of dihydrate and eutectic.

To sum up: at -6° F., salt brine of any composition whatever freezes solid. Between this temperature and 32° F., pure ice separates out of brine *weaker* than 88.3° S., and dihydrate crystals form in brines *stronger* than 88.3° S. In brines originally over 99.6° S., pure salt separates out at some temperature above 32.2° F., then is dissolved as dihydrate is formed in temperatures below 32.2° F.

You can get expert engineering assistance on brine-freezing characteristics from International Salt Company. Of course, you can also get information on *any* subject concerning the storage, handling or use of salt or brine from the same source. Just contact the nearest district office, or write direct to International Salt Co., Inc., Scranton 2, Pa.

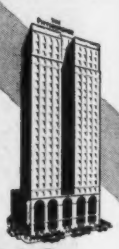
SALES OFFICES: Atlanta, Ga.; Chicago, Ill.; New Orleans, La.; Baltimore, Md.; Boston, Mass.; Detroit, Mich.; St. Louis, Mo.; Newark, N. J.; Buffalo, N. Y.; New York, N. Y.; Cincinnati, O.; Cleveland, O.; Philadelphia, Pa.; Pittsburgh, Pa.; Memphis, Tenn.; and Richmond, Va.

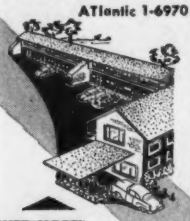
Service and research are the extras in STERLING SALT
PRODUCT OF INTERNATIONAL SALT COMPANY, INC

Your Choice for Convenience in PITTSBURGH

HOTEL PITTSBURGHER
Right in the heart of the Golden Triangle 400 outside rooms with TV and every comfort of modern hotel design. General Forbes Lounge and Dining Room . . . Air Conditioning. Airport Limousine and Taxi Service.
Forbes Avenue Below Grant
ATlantic 1-6970

JACKTOWN MOTOR HOTEL
The very finest accommodations. 60 air-conditioned rooms with TV, telephone, combination tile baths. Excellent dining room. Facilities for group parties 15 to 500.
Route 30 Irwin, Pa.
1 mile West of Irwin Interchange
UNderhill 3-2100





KNOTT HOTELS

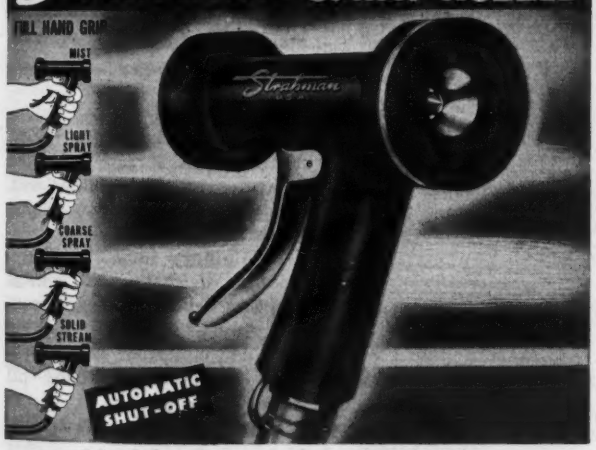
HOTEL PITTSBURGHER MOTEL
Opposite Greater Pittsburgh Airport on beautiful Airport Parkway West. 56 luxurious, air-conditioned rooms with tile bath, TV, private phone. Courtesy car to and from airport.
AMherst 4-5152

Joseph F. Duddy, Gen. Mgr.

* Teletype Service. For immediate confirmation of reservations at no charge . . . telephone any Knott Hotel—or teletype PG-29.

5130 on Reader Service Slip

Strahman AUTOMATIC WATER-SAVER SPRAY NOZZLE



Ideal for Dairy and Food Industries

The Strahman Spray Nozzle does a better job with the least amount of water. This precision made nozzle enables the operator to get any type stream of water to do his job by simply pressing the lever. A soft spray is sent forth with slight pressure on the lever, and a strong straight stream may be had by pushing the lever all the way down. This convenient control of the wash water assures better cleaning with a lot less effort. The nozzle automatically shuts off the moment the lever is released, thereby eliminating all waste of water.

RENEWABLE RUBBER COVER. The sturdy cover protects the nozzle and your equipment against knocks and dents. When the cover becomes worn, replace it with a new one.

CONSULT YOUR DEALER

STRAHMAN VALVES, INC., 74 HUDSON STREET, NEW YORK 13, U. S. A.

5131 on Reader Service Slip

packaging

(*Continued from page* 78)

Liebman Breweries, Brooklyn (producers of Rheingold beer), is one firm reporting successful use of gap-flap cases. They use a 1¾" gap, top and bottom, for single-layer, 24-can cases.

For 48-can cases, Liebman uses a gap 1¾" wide on top only. A Milwaukee brewery ships eight 6-packs in cases having a 2" gap between top flaps only.

Lab tests, standard cans: Beer cans are of heavier construction (to withstand carbonating pressures) than standard sanitary cans used for fruits and vegetables.

To see what effect the gap-flap cases might have on standard cans, Fibre Box Association contracted to have cases of water-filled No. 2½ cans tested under laboratory conditions.

The lab tests showed that the strength of the cartons was reduced progressively as the gap between the outer flaps was increased. One-, two- and three-inch gaps were used in the tests.

Even the smaller gaps weakened the carton somewhat and increased damage to contents during tests.

No actual shipping tests were made to determine whether this increased damage would cancel the saving in fiberboard which results when shortened flaps are used.

Extensive tables are given in the 27-pp booklet on test results of the No. 2½ cans.

Booklet, "The Effect of Varying the Gap Between the Outer Flaps of Corrugated Boxes for Canned Goods," is issued by Fibre Box Association, 224 S. Michigan Ave., Chicago 4, Ill.

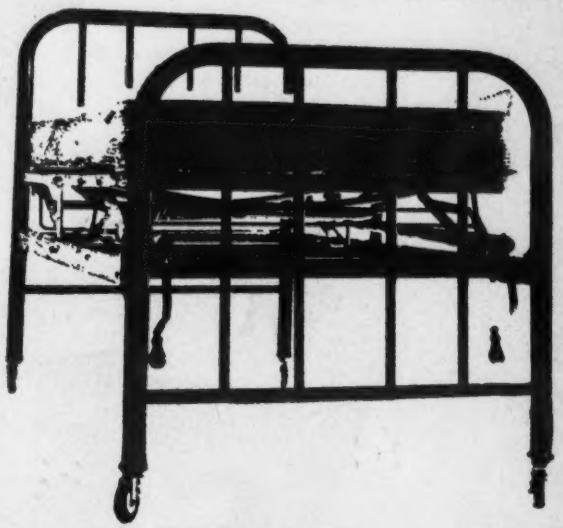
For your copy simply circle 5132 on Reader Service Slip.

READER SERVICE

For more information on packaging developments described in these articles . . . use the convenient self-mailing Reader Service Slip opposite the inside back cover.

One accident that doesn't happen can pay for

ALCOA ABRASIVE TREAD PLATE



An employee slips on stairs, severely fractures his right heel. Disability is permanent. Medical expenses top $500. Employee compensation comes to $2,956.43. Production time is lost while a new employee is trained for the job. The employer's accident rate is up.

Such expensive and unnecessary slipping accidents kill or maim 20,000 workers in industry every year. To prevent such accidents, Alcoa® Aluminum Abrasive Tread Plate remains slip-proof even when wet, oily or greasy. Made of tough particles of fused aluminum oxide, its hard, abrasive surface is the only nonskid floor plate that gives you the advantages of lightweight, corrosion-resistant aluminum.

For more information on how you can eliminate hazardous conditions from floors, stairs, ramps and other areas, check the coupon below; write Aluminum Company of America, 1664-J Alcoa Building, or call your nearest Alcoa distributor.

MAKE YOUR OWN 30-second Safety Test . . . Check the Coupon for FREE Sample of Alcoa Aluminum Abrasive Tread Plate.

ALCOA ALUMINUM

Your Guide to the Best in Aluminum Value

"ALCOA THEATRE"
Exciting Adventure, Alternate Monday Evenings

No slips . . . no falls . . . no injuries with the safe, sure grip you get from Alcoa Abrasive Tread Plate.

ALUMINUM COMPANY OF AMERICA
1664-J Alcoa Building, Pittsburgh 19, Pa.

I'd like to see how Alcoa Abrasive Tread Plate prevents slipping. Please send me FREE sample—also application, design and fabricating data.

Name and Title_____
Company_____
Address_____
City and State_____

5134 on Reader Service Slip

...glamour in glass!

adds impact to in-store display

The foods you sell can show off much better, in beautiful glass by H-A. In crystal flint jars, nappys, or colorfully designed re-use tumblers—H-A uses beauty to pep up the power of package display. That's why H-A packaged foods appeal quicker to the eyes that buy.

HAZEL-ATLAS GLASS division of CONTINENTAL CAN COMPANY

Wheeling, West Virginia

New, single-spray-coat

Pail linings that

permit use of low-cost, light steel pail for delivery of bakers' filling ingredients

Problem: Henry & Henry, Inc., Buffalo, N.Y., supply 1000 bakeries in all 48 states with pastry and doughnut fillings, jams and jellies.

Containers must be sturdy enough to withstand normal impacts. Linings are necessary to prevent possible reaction between container and certain food components having pH from 4.3 to 3.0.

Although containers have only a one-time use from company's standpoint, heavy steel pails with double-coat linings were regarded necessary to give type of protection required.

However, rising packaging costs spurred company officials to initiate search for a more economical container.

Solution: New, improved lining materials and advanced techniques for applying lin-

Aluminum ring seals hold rubber gaskets in pail covers tight on top lip of pail to withstand handling shocks, help highly efficient linings prolong product shelf life

'bend' at impact

ings enabled company to convert to a container which costs only a small fraction of product price.

The lining — a pigmented epoxy-phenolic applied as a single-spray coating — meets all of Henry & Henry's specifications for resistance to chemical action.

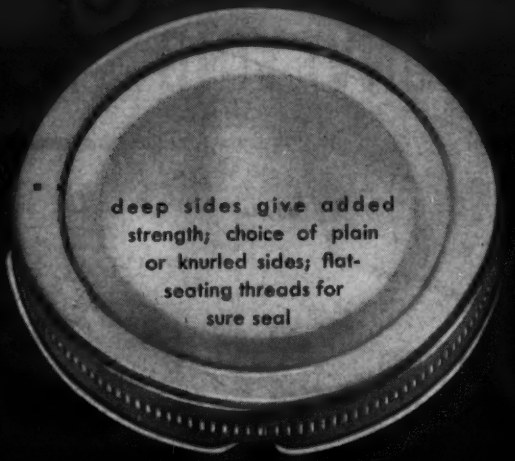
In addition, lining has enough flexibility to adhere to the walls without breaking, even when pail is severely dented. This has justified use of a lighter 26-gage sheet steel for the container.

Pails are sturdy enough to require only normal care in transport and in-plant handling, provide a degree of product protection which enables Henry & Henry to guarantee twice the normal maximum shelf life.

Epoxy-phenolic-lined steel pails are manufactured by Jones & Laughlin Steel Corp., 3 Gateway Center, Pittsburgh 30, Pennsylvania.

For more information circle 5135 on Reader Service Slip.

THE ONLY LUG CAP



deep sides give added strength; choice of plain or knurled sides; flat-seating threads for sure seal

WITH A LIVE RUBBER SEAL . . .

best withstands live steam; won't stick to glass; easy to apply; stays put; vacuum-seals

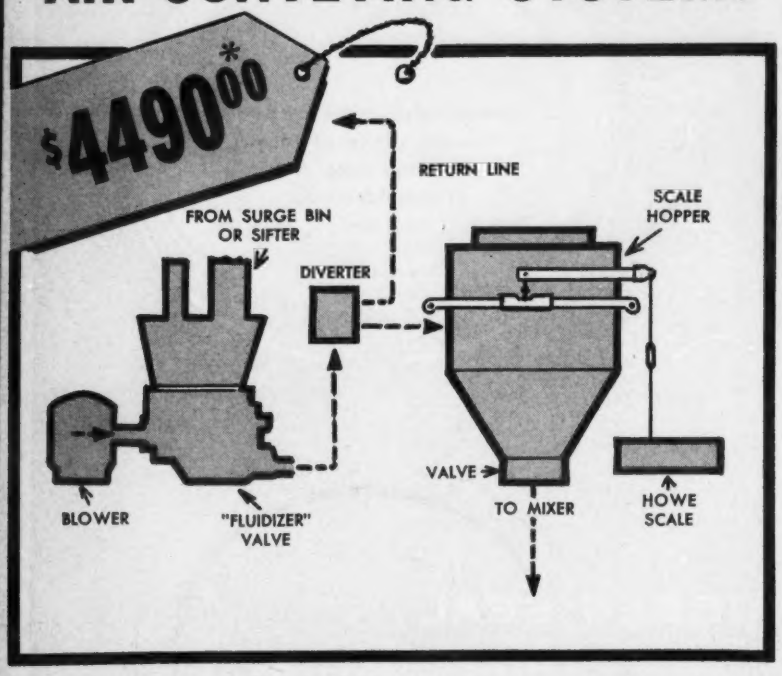
AND ONLY CROWN MAKES IT!

for cans · closures · crowns · machinery **CROWN**

CROWN CORK & SEAL COMPANY, INC., 9300 Ashton Road, Philadelphia 36, Pa.

5136 on Reader Service Slip

NOW...A COMPLETE SUPERIOR AIR CONVEYING SYSTEM!



Slash costs...bulk handle flour and sugar...sanitary-automatic

You need Superior's air conveying system to meet sanitation requirements, cut labor costs, and make substantial savings with bulk delivery. This Superior air conveying package—only $4490—is ideal for bakeries and other bulk product users. The system is a basic installation and can be expanded later. Top design and engineering "know-how" are built into every Superior system . . . most advanced in modern air handling.

System includes:

A. Inlet hopper with breather.
B. "FLUIDIZER", FV 220-C with motor and base.
C. Blower, explosion proof motor with base.
D. Aluminum tubing, 100 feet 2", with fittings and bends.
E. Superior Diverter DV 20.
F. Scale hopper, 1000 lb. with breather, vibrator and manual butterfly discharge valve.
G. Scales, 1000 lb. Howe beam type with automatic cutoff.
H. Mixer control station with "FLUIDIZER" and blower motor starters.

Capacity: approximately 200 lb. per min. for flour.

*F.O.B. Hopkins and without installation costs.

Write for details or see CEC Catalog.

Product Sales or Systems Engineering

Superior

PROCESS MACHINERY DIVISION

SUPERIOR SEPARATOR CO.
121 S. Washington, Hopkins, Minn.
WEst 8-7651

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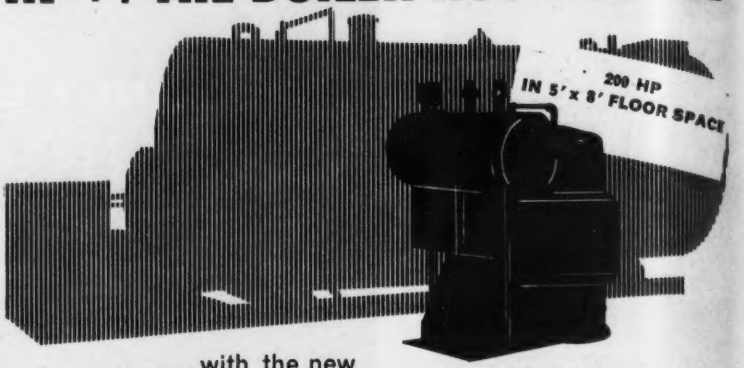
GET THE SAME STEAM OUTPUT IN ¼ THE BOILER ROOM SPACE

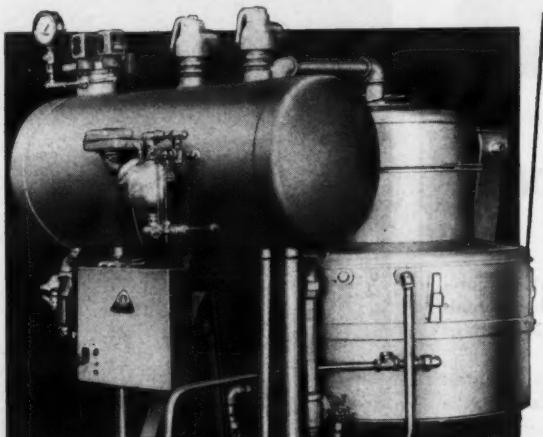


...with the new

VAPOR DRUM MODULĀTIC

WATER-TUBE BOILER

"World's Most Compact Heat and Power Package"



Provides steam in 5 minutes from cold start. 0-15 psi for heating, 5-150 psi (or higher) for process, power, countless production applications

Instant unlimited hot water, high or low temperature

Wide range of models, 20 to 200 hp., 670,000 to 6,690,000 btu/hr.

"MONEY-MAKER SERIES"

ONLY VAPOR DRUM MODULĀTICS GIVE YOU ALL THESE OUTSTANDING FEATURES

Low Installation Cost. DRUM MODULATICS are delivered as complete units, fully assembled, wired and tested, ready for operation. No wall removal . . . units fit through shop doors. No expensive chimney . . . MODULĀTICS have built-in forced draft.

Explosion Proof Safety Features. Built-in, automatic safeguards against water or flame failure, or excessive pressure.

Greatest Operating and Maintenance Economy. Fully automatic, "push-button" operation. Full steam output in 5 minutes from cold start ends early-morning reparting and standby. Hot gases wipe *all* outside tube surfaces and forced circulation of water wipes all inside surfaces to give greatest heat transfer efficiency. Simple, positive control system supplies steam as required—follows fluctuating demand. Burns oil, gas, or both.

Ideal for Multiple-Unit Installation. Great flexibility for widely-varying steam or hot water requirements. Power source is not confined to one boiler. Coordinating control system turns individual units on or off automatically as steam demand varies.

Never Require Replacement. DRUM MODULĀTIC design permits easy, simple replacement of water-tube coils (or other parts) for lifetime peak efficiency.

Write for Bulletin 475

VAPOR HEATING CORPORATION
80 East Jackson Boulevard, Chicago 4, Illinois, Dept. 7-I

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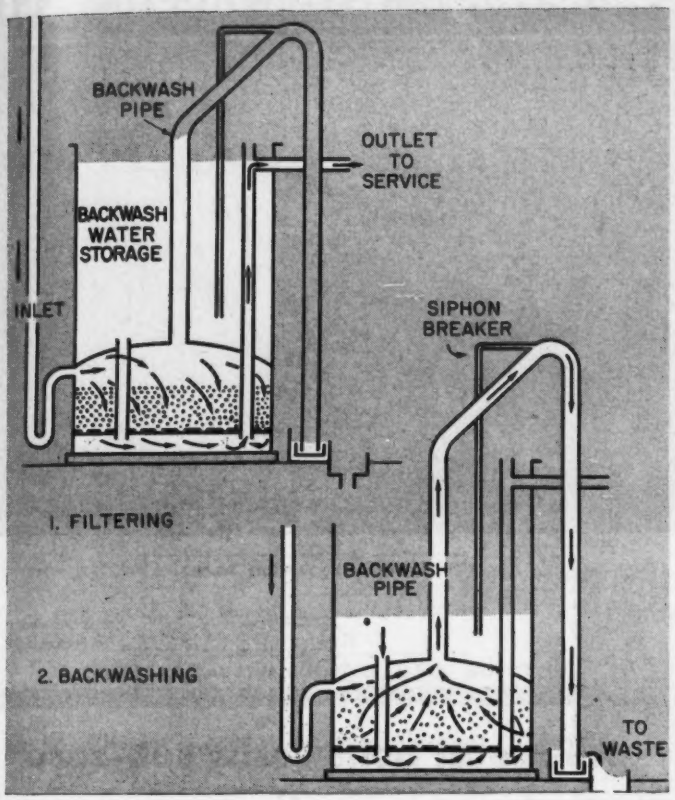


Automatic filter for water

- **Uses no valves, no pumps, no flow controllers**
- **Costs less than conventional manually operated equipment**

Uses: For filtering water for any process operation.

Features: Requires no valves, pumps, or flow controllers, reducing operation and maintenance costs.

Installation cost of 20,800 gph unit is under $12,000.

Design prevents wasteful use of water for backwashing and rinsing. Filter will not develop a negative head, thus eliminating cause of mudballs, channelling and upset beds.

Description: In filtering operation, water enters through inlet pipe as shown in diagram. It flows through sand, strainers, and false bottom up effluent duct to service.

As head loss increases, water rises in backwash pipe. At maximum headloss, water spills into downward section of backwash pipe and starts backwash action.

In backwash action, a small pipe, serving as a siphon, draws water from storage area, up through sand, floating dirt off to waste.

At low storage level, air enters small tube, stopping the siphon action to prevent further backwash.

Flow then reverses and filtered water flows into storage until full.

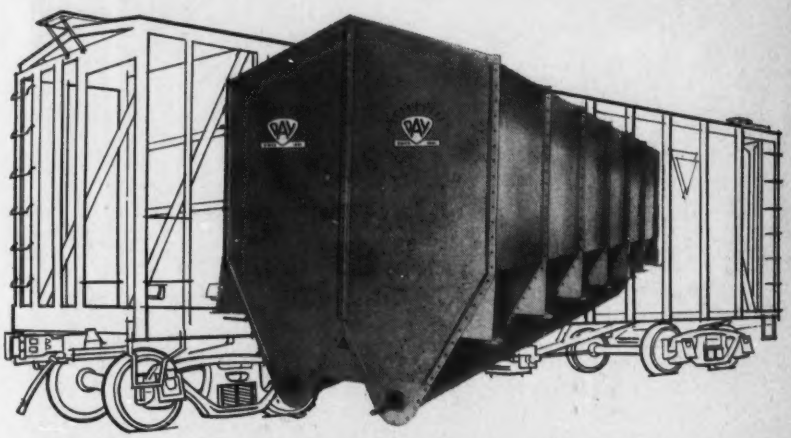
All flow then again goes to service.

Automatic water filter is a development of The Permutit Co., a division of Pfaudler Permutit Inc., 50 W. 44th St., New York 36, N. Y.

For more information circle 5139 on Reader Service Slip.

DAY

BULK STORAGE NEWS

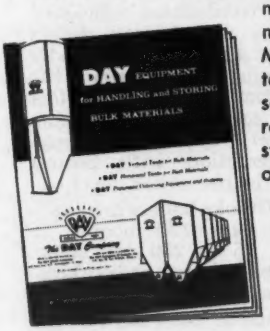


A CARLOAD OF STORAGE IN ONE 'PACKAGE'

SAVE! Store Ingredients in bulk with **DAY** Tanks

Here's a "package" that's engineered and built for heavy duty service. Compared to bags or other containers, DAY Bulk Tanks store more materials, in less space, faster, better and cheaper. By eliminating bag and labor costs they save up to 35¢ on every 100 lbs. of bulk material handled.

DAY tanks are large enough to actually store a carload or more of material in a single tank. They may be pneumatically or mechanically loaded and emptied. Made in vertical and horizontal styles, DAY tanks are built and shipped in easily erected sections. They have been proven in a wide range of applications. They are sturdily constructed of galvanized, black or stainless steels or aluminum.



Write toDAY for Bulletin 574. This 12-page booklet gives specifications plus money saving facts about sanitary, weatherproof DAY tanks.

The **DAY** *Company*

SOLD in UNITED STATES by The DAY SALES Company 848 Third Ave. N.E., Minneapolis 13, Minn.

MADE and SOLD in CANADA by The DAY Company of Canada Limited 25 Brydon Drive, Rexdale (Toronto), Ontario

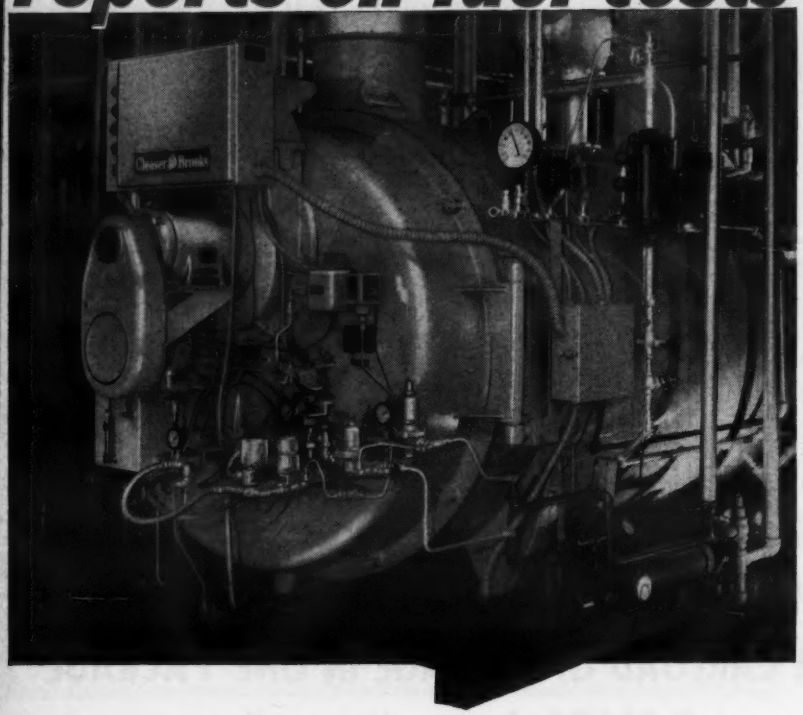
Representatives in Principal Cities

EQUIPMENT ONLY OR A COMPLETE SYSTEM

5140 on Reader Service Slip

Geo. H. Meyer & Sons

reports on fuel costs



"Cleaver-Brooks steam boiler saved us $2,000 the first year!"

Letter from Leonard Meyer of Geo. H. Meyer & Sons, packing company, Richmond, Va.

"During May, 1957, we installed one of your Cleaver-Brooks 150 hp high pressure steam boilers of the combination #6 oil and natural gas type.

After one year's operation, we are pleased to report that our yearly saving in fuel costs has been approximately — $2,000.00.

We wish to advise that your cooperation in our installation and your prompt and efficient services have been very helpful in securing the over-all performance of this equipment.

Should we require another boiler we would not hesitate to purchase a Cleaver-Brooks unit."

Owner satisfaction with Cleaver-Brooks boilers stems from their superior performance and basic design standards that assure: *lower fuel costs* through high heat transfer of four-pass fire-tube construction, *high combustion* efficiency sustained by forced draft design with proper air/fuel ratios under all conditions, *longer boiler* life resulting from a full 5 square feet of heating surface per boiler hp, *greater safety* by reason of updraft construction with hottest gases well below water level.

Cleaver-Brooks boilers are available in 19 sizes, 130 models, 15 to 600 hp, 15 to 250 psi, steam or hot water, oil, gas or combination oil/gas fired.

For complete information call nearest representative or write Cleaver-Brooks Company, Dept. K, 357 E. Keefe Ave., Milwaukee 12, Wisconsin.

Cleaver Brooks®

ORIGINATOR AND LARGEST PRODUCER OF PACKAGED BOILERS

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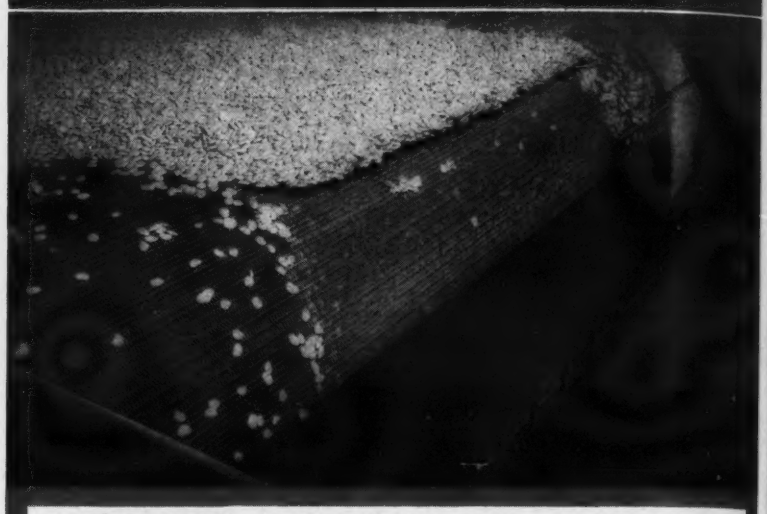
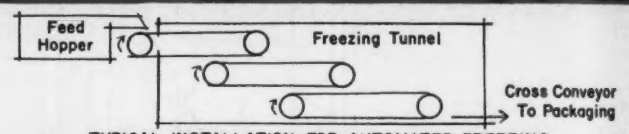
Cambridge WIRE MESH BELTS





TYPICAL INSTALLATION FOR AUTOMATED FREEZING

All-metal belts resist sub-zero temperatures in continuous processing

Continuous freezing on Cambridge Wire Mesh Belts helps maintain capacity production and assures more uniform processing. Open mesh permits free circulation of cold air through belt and around product for fast, uniform freezing. All-metal construction is rustproof, coldproof; cannot absorb odors; a quick spray or steam cleaning maintains sanitary requirements.

In washing, inspecting, baking and cooling operation, too, Cambridge belts cut operating costs and reduce manual handling. Here's why:

CONTINUOUSLY MOVING BELTS ELIMINATE BATCH PROCESSING for faster, more economical production.

OPEN MESH PERMITS FREE DRAINAGE of wash solutions, dirt, grit; allow free heat and air circulation for uniform baking, drying.

ALL-METAL CONSTRUCTION GIVES LONGER SERVICE: there are no seams, lacers or fasteners to break or wear.

SPECIAL ATTACHMENT AVAILABLE; raised edges and cross flights hold product on belt during inclined movement.

Talk to your Cambridge FIELD ENGINEER soon—he'll explain the many advantages of continuous food processing on Cambridge Wire Mesh belts. He'll recommend the belt size, mesh or weave—and the metal or alloy—best suited to your operations. You'll find his name in the classified phone book. Or, write for FREE 130-PAGE REFERENCE MANUAL giving mesh specifications, design information and metallurgical data.

The Cambridge Wire Cloth Co.

WIRE CLOTH | METAL CONVEYOR BELTS | SPECIAL METAL FABRICATION

Department H, Cambridge 9, Maryland

OFFICES IN PRINCIPAL INDUSTRIAL CITIES

5142 on Reader Service Slip

Improved Quality...
Increased Uniformity...
Added Nutritive Value
for your Food Products

SHEFTENE®
Sodium Caseinate

Few processing ingredients you can think of can perform so many functions, and add so many real benefits to your product as Sheftene Sodium Caseinate — the nutritive, *high-quality* milk protein.

Here are just a few of its principal applications:

As a protein supplement in pharmaceutical, infant and diet foods!

As an emulsifier for fats and water binder in processed meats!

As a lysine-rich additive to cereals and bakery products!

As a fat-blocking ingredient in making doughnuts!

As a stabilizer and emulsifier in milk shake bases!

As an agent to reduce shrinkage, improve body and texture of ice cream!

As a coagulant and clarifier for wines!

Samples, data and technical assistance are available upon request.

Write or phone today Dept. FP-958

SHEFFIELD CHEMICAL
Norwich, N. Y.
A DIVISION OF NATIONAL DAIRY PRODUCTS CORPORATION

SHEFTENE WHIPPING COMPOUND

An ideal milk protein concentrate for vegetable fat toppings. Adds no 'foreign' flavor or odor! Completely stable when heated — even to boiling! Homogenizes readily — doesn't 'weep'! Outstanding 'keeping' qualities! Whips to perfect consistency!

NOT A SKIM MILK POWDER

Write for data and sample

5143 on Reader Service Slip

Rotating magnetic grate prevents clogging in separator

Uses: Installed at discharge of open or enclosed chutes, or in open or closed duct systems, magnetic grate removes tramp iron, or fine iron particles.

Confectioners' sugar, flour, alfalfa are typical of materials for which it is suitable.

Features: Offers more effective removal of iron contamination in heavy flow of powdered materials.

Rotating magnetic grate prevents clogging or bridging of material.

Iron contamination is easily removed from magnetic tubes

Description: This rotating magnetic grate is composed of multiple Alnico V tube magnets, mounted horizontally between stainless steel plates. Entire assembly rotates around a central shaft which extends beyond the end-plates sufficiently to accommodate a drive pulley.

This permits installation in flange or pillow-block bearings. Grate revolves, through flowing material, at a predetermined speed related to the nature and condition of the material.

Under excessive choke conditions, for example, grate will deliver optimum magnetic separation at 5-10 rpm. A top speed of 30 rpm will generally not be exceeded. For average conditions 15-20 rpm is recommended.

Rota-Grate is built by Eriez Mfg. Co., Erie 6, Pa.

For more information circle 5144 on Reader Service Slip.

PRESERVE COLOR
PRESERVE FLAVOR
ECONOMICALLY
WITH
TAKAMINE
SODIUM ISOASCORBATE AND ISOASCORBIC ACID

These TAKAMINE antioxidants have proved completely reliable in the processing of frozen fruits, canned vegetables, beer, carbonated beverages, meats and fish. They protect the natural color and flavor and assure longer shelf-life. It's the easy, efficient way to control food quality, increase customer satisfaction, and assure greater profits for you!

It will TASTE better
LOOK better
SELL better
with TAKAMINE products

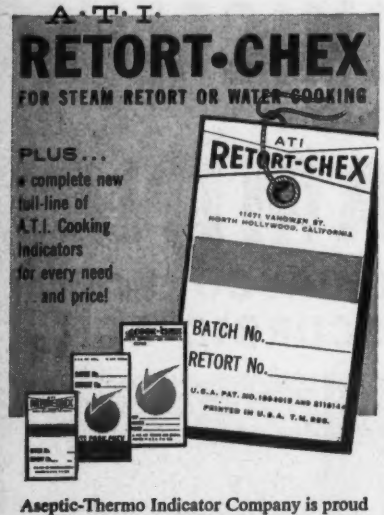
Write our Technical Service Department for complete information pertaining to your particular product problem!

TAKAMINE LABORATORY
DIVISION OF MILES LABORATORIES, INC.
CLIFTON, NEW JERSEY

5145 on Reader Service Slip

Announcing

the newest, most economical, cooking indicator tag on the market



Aseptic-Thermo Indicator Company is proud to announce these additions to its long established quality line of COOK-CHEX. Any A.T.I. tag, when attached to a retort basket, will tell at a glance: 1) The retort basket has, or has not, been through the cooking process. 2) It has, or has not, been subjected to *proper* cooking conditions.

These facts are important because they eliminate the usual problems of: a wrong cooking schedule, keeping baskets in sequence, and the possibility of "losing" uncooked baskets!

Both RETORT-CHEX and COOK-CHEX are now produced with a new, *improved* chemical formula which can be used for either steam retort or water cooking. A *purple* chemical ink turns to *green* only after *your* proper cooking conditions have been met. RETORT-CHEX are available as individual tags with or without reinforced holes and strings, or in tablet form. A.T.I. Indicators also prove excellent as a low cost, permanent record for your cooking-room operation. Be sure of uniform quality in your food products . . . Send today for a complete line of free samples and two informative pamphlets on quality cooking . . . "The COOK-CHEX Story" and "To the Technologist."

USE RELIABLE PRODUCTS BY

ASEPTIC-THERMO INDICATOR COMPANY

SEND FOR FREE SAMPLES AND PAMPHLETS

ASEPTIC-THERMO INDICATOR COMPANY FP-9
11471 Vanowen St., North Hollywood, Calif.

Please send the two informative pamphlets and a FREE supply of new RETORT-CHEX for use with a cooking process of_____degrees F., for_____minutes.

Name_____
Position_____
Company_____
Address_____
City_____ Zone____ State_____

5146 on Reader Service Slip

Honeycomb structure of filter fabric . . .

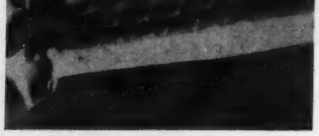
- **Offers flat support for cake**
- **Provides free flow**

Uses: Filtering fabric has been developed for use primarily as a filter media support and drainage member for wet process filters.

It may also be used with envelope type dust collectors.

Possible applications may also include using material as mist eliminators or entrainment separators in vacuum towers, distillation equipment, gas absorbers, scrubbers, evaporators, etc, where temperatures are moderate and corrosion severe.

Features: Fabric offers uniform flat support for filter cake and free flow for filtrate.



Honeycomb structure of filtering fabric is shown in above photo

Its smooth surface, as compared to conventional coarse woven wire or perforated plate, increases life of material.

It also eliminates need for undercovers, even with lightest material.

Used with envelope type dust collectors, fabric provides a spacer which evenly supports dust collector bag and minimizes wear.

Problems caused by failure of welded metal spacers or corrosion are eliminated with fabric.

Description: Filter fabric, with honeycomb structure, is woven from saran and polyethylene fiber, having the inherent corrosion resistance of these two plastics.

Resistance to and recovery from compression is good.

This 68" Automatic Reineveld Centrifuge, recently installed at Corn Products Refining Co., Argo, Ill., produces 1 ton of cornstarch powder every 7½ minutes. It dries a 22° Baume Slurry to an average moisture of only 34%. The higher G-forces, possible with a Reineveld Centrifuge, result in drier products and higher tonnages.

Consult our listing in CEC or write for bulletin 356.

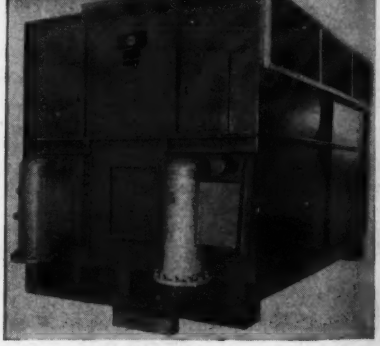
Sold and Serviced by:

Heyl & Patterson INC.

55 FORT PITT BLVD. · PITTSBURGH 22, PA.

5147 on Reader Service Slip

REDUCE OPERATING COST of VACUUM SYSTEMS with this "AERO" (air-cooled) VAPOR CONDENSER



Niagara Aero Vapor Condenser Panel Casing construction gives access to all parts, saves first costs in shipping and installation.

With free air the cooling medium, you use the least water, evaporated in the air stream. You save the cost and pumping of large volumes of condensing water.

Air-vapor subcooling reduces mixture evacuated from the system, saving in the operation of steam ejector or vacuum pump.

This air-cooled condenser gives you more capacity than other types at a substantial saving of steam and power. Water supply, scaling treatment and disposal problems are eliminated.

You get pure condensate, an improved product; often profit by recovery of residues now wasted. There can be no contamination of your product at any time; it never touches raw water. Condensing, of water, of solvents or of your product, is simplified; you have one, compact, easily maintained unit replacing both cooling tower and barometric or surface type condenser.

Maintenance expense is low. Niagara Aero Vapor Condenser Panel Casing construction gives access to all parts, saves first costs in shipping and installation. Summer-winter dampers and Balanced Wet Bulb Control provide precise, year 'round adjustment of capacity to load.

Constant temperature, uniform products and maximum production 12 months a year are assured. Capacities up to 15 million BTU/hr.

Write for full information. Ask for Bulletin 129R

NIAGARA BLOWER COMPANY

Dept. FP-9, 405 Lexington Ave., New York 17, N.Y.

Niagara District Engineers in Principal Cities of U. S. and Canada

5148 on Reader Service Slip

Application for wet filtration includes use on disc filter leaves, drum filter panels, pressure filters (low to medium pressures), filter bottom tanks and pan filters.

Samples of filtering fabric (Trilok) may be obtained from the manufacturer: The National Filter Media Corp., 1717 Dixwell Ave., New Haven, Conn.

For more information circle 5149 on Reader Service Slip.

Drum heater uses zone heating, depending on material level

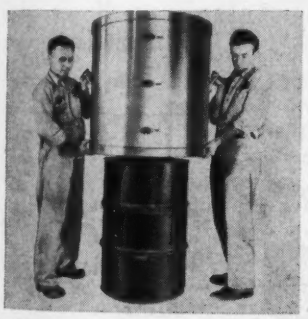
Uses: For melting various fluid materials in drums.

Features: Provides zone heating with three electrical circuits, each circuit covering a third of the drum height.

One, two or three zones may be used, depending upon level of liquid in drum.

Description: Drum heater is built of aluminum.

It is designed and built in a single piece.



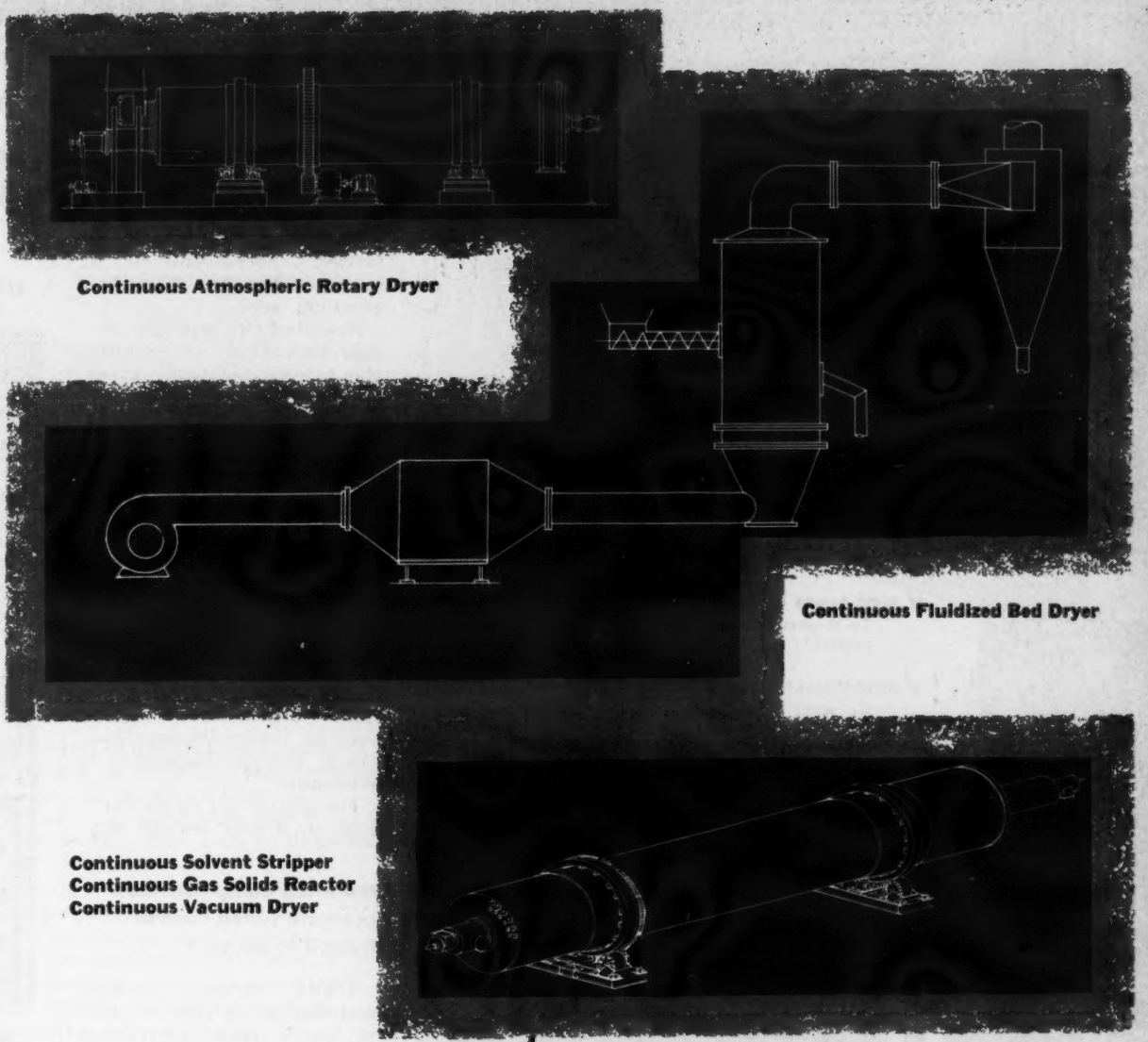
For operation, drum heater is simply lowered over drum to be heated and three leads are hooked up

Unit is rated at 6000 watts (2000 watts, 230 volts for each circuit). This provides ample power for rapid melting of materials without danger of hot spots.

Each lead includes three wires with one wire grounded to housing to insure safety.

Electrically powered drum heater is a product of GlasCol Apparatus Co., 711 Hulman St., Terre Haute, Ind.

For more information circle 5150 on Reader Service Slip.



Continuous Atmospheric Rotary Dryer

Continuous Fluidized Bed Dryer

Continuous Solvent Stripper
Continuous Gas Solids Reactor
Continuous Vacuum Dryer

Now, at one convenient location, you can test-dry your materials in a variety of equipment

At General American's East Chicago pilot plant, you can test the drying or reacting of your materials in the widest range of drying equipment ever assembled in one place.

Louisville Dryer engineers will work with you—study your materials and needs, make recommendations for type of equipment, size and heating medium. You can check these recommendations for yourself through practical tests. Your Louisville Dryer is then engineered for most efficient and economical service—built specifically to meet your needs.

To test the drying of your materials in all these different types of drying equipment, call in a Louisville Dryer engineer. There is no cost or obligation.

PROCESS EQUIPMENT DIVISION GENERAL AMERICAN TRADE MARK

LOUISVILLE DRYER DIVISION
GENERAL AMERICAN TRANSPORTATION CORPORATION
135 South La Salle Street, Chicago 90, Illinois
Offices in principal cities

5151 on Reader Service Slip

5152 on Reader Service Slip

processing

Utilize DC efficiency without the headaches

Where motor driven machinery demands wide speed ranges and close speed control usually a direct current motor is used. Conventionally, this is powered by an AC-DC motor-generator set.

Described in separate 14-page booklets are two adjustable speed packaged drives for this purpose. They use electronic and magnetic amplifiers, respectively, to convert AC to DC use.

These systems eliminate need to lubricate or replace bearings, service brushes and commutators, align shafts, maintain couplings, or balance inertia loads, as required under conventional method.

Booklets, "Ultraflex E Electronic Packaged Drive," and "Ultraflex M Magnetic Amplifier Packaged Drive," are issued by Cutler-Hammer Inc., 315 N. 12th St., Milwaukee 1, Wisconsin.

For your copies simply circle 5153 on Reader Service Slip.

Metering pump provides accurate speed control from 0 to 25 gpm

Uses: Portable, sanitary metering pump may be used to handle light, non-viscous liquids, or heavy viscous materials without aeration, crystallization or product breakdown.

Infinite range sanitary metering pump

Features: Pump offers high accuracy metering with discharge rates from 0 to 25 gpm.

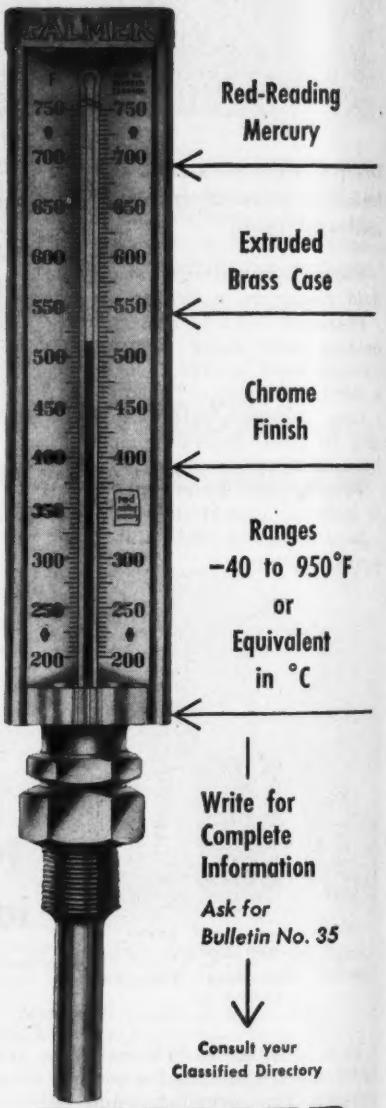
A micrometer adjustment determines discharge rates, remaining constant once set, to provide accurate measuring and proportioning.

(*Continued on page 92*)

Today's Modern Industry
Demands a Modern Thermometer

PALMER

RED-READING MERCURY THERMOMETERS



Write for Complete Information
Ask for Bulletin No. 35

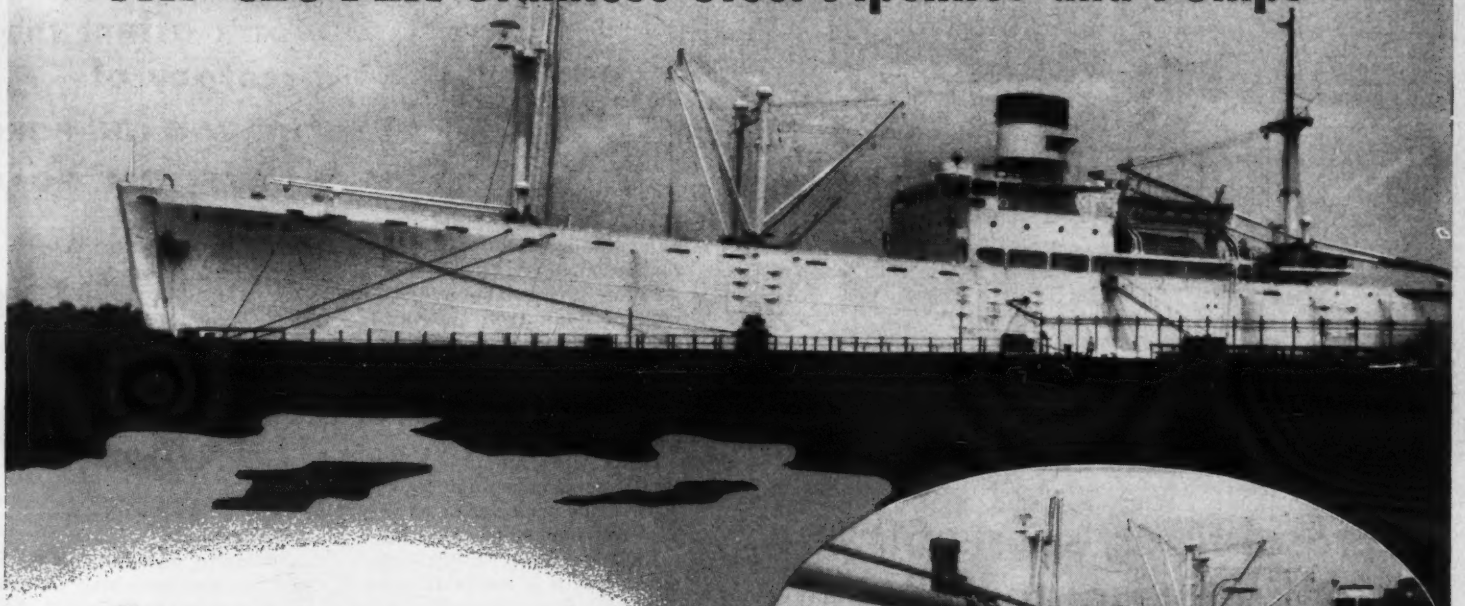
Consult your Classified Directory

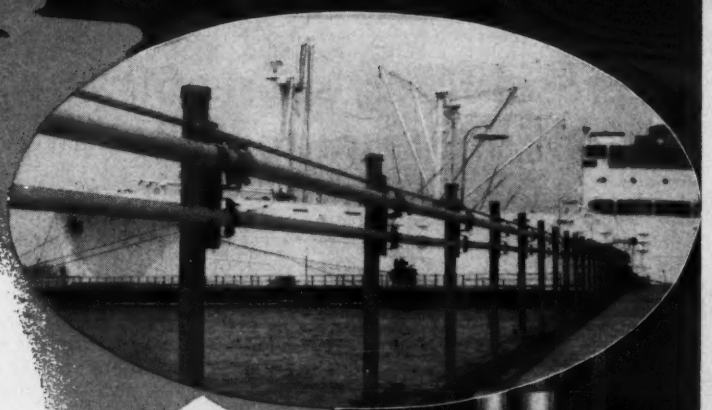
PALMER

THERMOMETERS, INC.
Mfrs. of Industrial Laboratory, Recording and Dial Thermometers
Cincinnati 12, O.

5154 on Reader Service Slip

Orange Juice "Tanker" handles cargo with TRI-CLOVER Stainless Steel Pipelines and Pumps





Named for the brand of orange juice it carries, the S. S. *TROPICANA* is an 8,000-ton cargo vessel now converted into "tanker" service for transporting some 650,000 gallons of fresh orange juice from Cocoa, Florida, to Whitestone, New York for its owner, Fruit Industries, Inc.

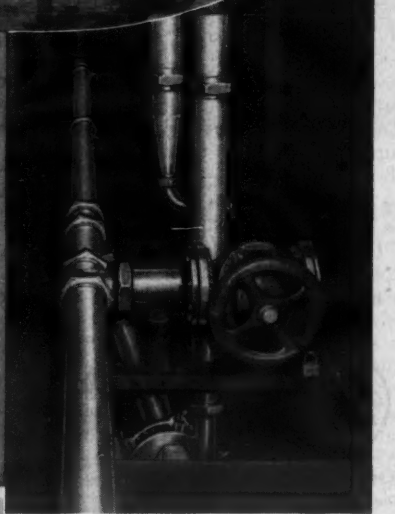
Only vessel of its kind in the world, the *TROPICANA* takes on and discharges its flavorful cargo via Tri-Clover Division 4-in. stainless steel "pipelines", sections of which are connected with "Tri-Clamp"® quick-action leak-proof clamp unions. On board the vessel, large-capacity Tri-Clover centrifugal pumps distribute the orange juice to huge insulated stainless steel tanks in the ship's cargo holds, where the liquid cargo is kept refrigerated, under vacuum, to preserve its freshness.

At the New York end the fluid cargo is piped ashore, stored and packaged in cartons for distribution—where numerous Tri-Clover stainless steel fittings, valves and tubing continually guard against product contamination.

Unusual, perhaps, but an excellent example of the way in which processors rely on Tri-Clover Division products to protect product quality, resist corrosion, and render long, trouble-free conveying line service.

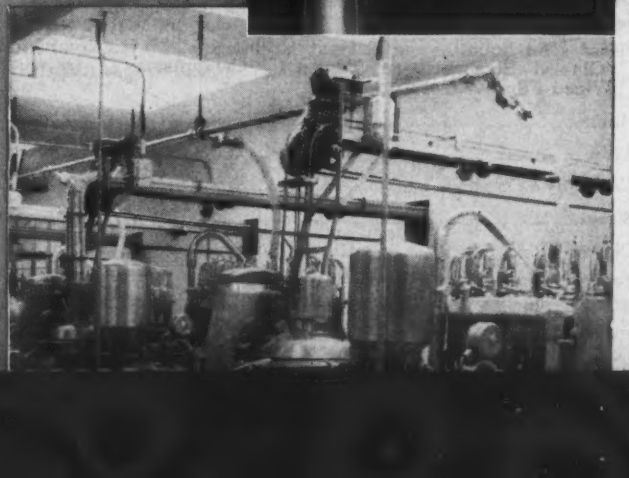
See your nearest TRI-CLOVER Distributor.

Section of 4" O.D. stainless steel "pipeline" with Tri-Clamp fittings for transferring fluid cargo to shoreside tanks.



One of the Tri-Clover pumps and part of the Tri-Clover fittings used aboard ship to transfer juice in loading and unloading operations.

View of shore-based packaging operations where juice is again conveyed through Tri-Clover fittings, valves and tubing.



EXPORT DEPT:—8 So. Michigan Avenue, Chicago U.S.A.—Cable: TRICLO

IN CANADA— Brantford, Ontario

LADISH CO.
Tri-Clover Division
Kenosha Wisconsin

S-857

TRI-CLOVER

5155 on Reader Service Slip

at Rich Products

Aerosol filling spurts 50% with rotary piston filler

During the past six months Rich Products has increased production output for aerosol packed whipped dessert topping by a full 50%. At the same time line personnel was cut by one-half.

A major reason for this increase was Rich's switch to a Pfaudler rotary piston filler.

Fast fill without spill—Rich fills from 20,000 to 40,000 seven- and twelve-ounce cans in an 8 hr. day. In spite of this speed and in spite of the small can openings, Rich holds accuracy to one or two grams on both sizes.

Easy sanitation—There's no place for a food product to get trapped on a Pfaudler filler. Cleaning is so simple, Rich accomplishes it with one man in just one-half hour. He removes only two parts at each station to get thorough cleaning. Rich reports that the bacteria count on toppings is ZERO.

Easy maintenance, too—Rich has had absolutely no maintenance other than routine cleaning and lubrication. Not one minute of production time has been lost to breakdown or parts replacement.

Just right for heavy products in aerosol—Pfaudler fillers are particularly well suited to heavy foods like Rich's topping and also to such products as tooth paste and shaving creams.

Send for bulletin—For details on the six-station filler Rich Products uses as well as larger Pfaudler Fillers, write for Bulletin No. 911.

FOOD EQUIPMENT

THE PFAUDLER CO., *a division of* **PFAUDLER PERMUTIT INC.**
Dept. FP-98, ROCHESTER 3, NEW YORK

Please send bulletins on ☐ Heat Exchangers; ☐ Rotary Piston Fillers; ☐ Glassed-Steel Storage Tanks; ☐ Centrifuges; ☐ Dryer-Blenders; ☐ Wiped-Film Evaporators.

Name.....

Title.....

Company.....

Street.....

City.....Zone.....State.....

5156 on Reader Service Slip

processing

(*Continued from page* 90)

Description: Pump has one piece shaft extending through both a spur gear and a pump chamber.

There are no bushings or bearings in the pump chamber and no metal to metal contact of the metering impellers.

When operating at slow speed, impellers form four large chambers in pump head, gently draw and discharge four product loads with each revolution.

Pump is available with or without both fixed and variable speed drives.

Other pneumatic or electric controls are offered with pump for remote or automatic control of flow rates.

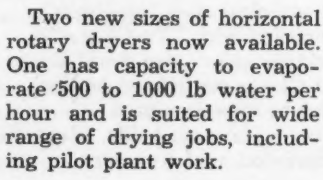
Other size pumps provide discharge rates as high as 60,000 pounds per hour or as low as a few ounces per hour.

Information on sanitary metering pump is available from Graham Transmissions Inc., Menomonie Falls, Wisc.

For more information circle 5157 on Reader Service Slip.

Dehydrators—pilot plant to king size

Two new sizes of horizontal rotary dryers now available. One has capacity to evaporate 500 to 1000 lb water per hour and is suited for wide range of drying jobs, including pilot plant work.



Three cylinders in one drum

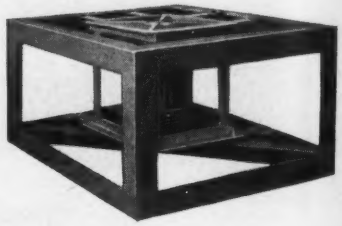
Other size evaporates 36,000 lb of water per hour.

Both units use three cylinders in one drum, with compound flights on both sides of each internal drum to eliminate surging.

Dehydrators are products of Arnold Dryer Div. of The Heil Co., 3000 W. Montana Ave., Milwaukee 1, Wisc.

For more information circle 5158 on Reader Service Slip.

eccentric loading, side thrusts, pile-ups won't affect the accuracy of THE W-C UNI-FORCE PLATFORM SCALE



No matter where or how the load falls, the Uni-Force Scale will deliver a true measurement of weight. Reason for this remarkable performance is the W-C flexural frame arrangement which resolves platform thrusts into a single component of force applied to the load transducer. Flexure mounting eliminates bearings, knife-edges, pivots and other points of concentrated wear and friction. So dependable is scale operation that W-C guarantees an accuracy of ± 0.25% of calibrated range and a reproducibility of 1 part in 2000.

The Uni-Force Platform Scale is manufactured in a wide selection of standard capacities. It is supplied as a complete, packaged unit which includes either electrical or pneumatic transmission. Because the transmitted signal can be used to actuate a number of devices, the Uni-Force Scale is readily adaptable to such automatic functions as remote indicating, recording, batching, proportioning . . . just about any weight-controlled operation.

For complete information, write for Catalog 12.

W-C

S.A. 1606

WEIGHING and Control COMPONENTS, Inc.
206-G Lincoln Ave., Hatboro, Pa.

5159 on Reader Service Slip

Personalities, Companies

Dr. Ernst Theimer

has been advanced by van Ameringen-Haebler, Inc. to director of research, with headquarters at the firm's $3 million Union Beach plant. New general manager at the Union Beach unit, which includes the company's chemical manufacturing, engineering, and research and development departments, is Robert W. Teegarden.

Harold T. Jaeke

becomes vice president of planning and engineering at Oscar Mayer & Co., Madison, Wis., effective October 1. Jaeke, now vice president and Davenport plant manager, will thus relieve Adolph C. Bolz, senior vice president, of some of his duties, at the latter's request.

Continental Can Co.

has contributed $10,000 toward joint project of Florida Citrus Commission and Florida Citrus Experiment Station. Purpose is development of a new and faster method of measuring stability of frozen orange concentrate.

Swift & Company

has promoted George H. Swift Jr. to vice president, and E. F. Swift III to assistant vice president.

John Thompson

has been appointed vice president of Dodge & Olcott of Canada, Ltd.

Dr. Paul F. Hopper

is new director of food industry development in farm and home division of American Cyanamid Company.

(*More on page* 117)

For more information on product at right, circle 5160 see information request blank opposite last page.

Planning ahead can save $20,000 on fluid mixing

An idea from your LIGHTNIN MIXER *representative's briefcase*

This engineer is listening to an idea that's going to save his company $20,000 on fluid mixing.

He's working on a process that will employ mechanical mixers. But in a year or so, process requirements are expected to change, throwing 15% greater load on the mixers.

Problem: how can the engineer anticipate the change now so as to avoid heavy replacement costs later on?

Solution proposed by the LIGHTNIN Mixer representative: install standard turbine-type LIGHTNIN Mixers geared for the immediate job, but sized to handle the expected load.

When requirements increase, simply change impellers and two gears in each mixer—providing correct power input for the new conditions at minimum expense.

This is one example of many ways your LIGHTNIN representative can help you get efficient fluid mixing at lowest long-term cost.

What this man can do for you

He can give you better service on fluid mixing than anyone else—because he has seen and done more of it.

He helps you stay ahead of competition, by bringing you the newest mixing developments first.

He gives you the assurance of being *right*, because his recommendations stem from years of field work, plus realistic pilot-run data developed at MIXCO. We back him up by guaranteeing results, unconditionally.

Take advantage of his unmatched experience by putting him on your process-design team. For prompt help on any fluid mixing operation, call him in now. He's listed in Chemical Engineering Catalog. Or write us direct.

Lightnin® Mixers

MIXCO fluid mixing specialists

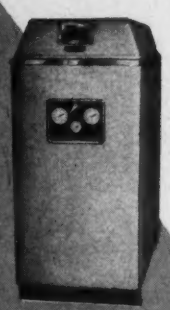
MIXING EQUIPMENT Co., Inc., 132-j Mt. Read Blvd., Rochester 11, N.Y.

In Canada: Greey Mixing Equipment, Ltd., 100 Miranda Ave., Toronto 10, Ont.

HOW BOWSER ESTABLISHED 1885 Liquid Handling SYSTEMS CUT COSTS

WITH AUTOMATIC CONTROL AND GREATER ACCURACY

Automate your metering, batching or blending operation with a Bowser liquid control SYSTEM . . . and get these BENEFITS . . . lower initial investment . . . completely automatic control . . . unsurpassed accuracy . . . increased efficiency . . . single source of supply . . . and system performance guaranteed by Bowser, Inc.

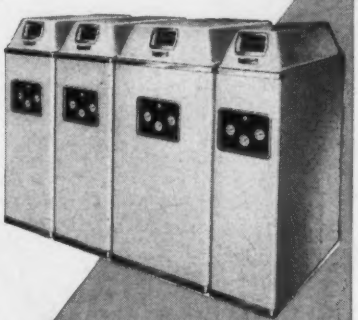


Rate of Flow Controlling System

The Figure 417 Rate of Flow Controller is a completely self-contained system enabling fully automatic and accurate CONTROL of the rate of liquid in flow . . . to better than ¼ of 1% accuracy. Handles flow rates from ½ G.P.M. to 250 G.P.M.

Liquid Blending System

The Figure 413 Precision Blending System automatically and accurately blends two or more liquids in closed, continuous production. Accuracy within ¼ of 1% and completely automatic operation . . . assures uniform blend . . . reduces blending costs by 50%.

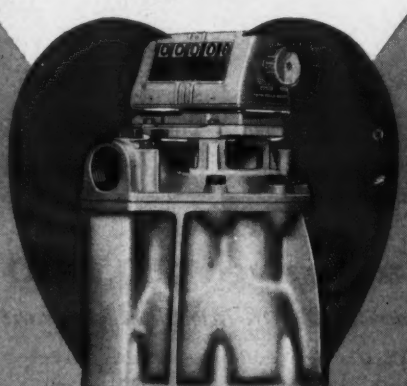


BOWSER METERS AND ACCESSORIES . . . offer complete systems for every type of liquid control requirement

MODEL L . . . straight-reading dial records liquid metered up to 100,000 gallons.

IMPULSE TRANSMITTER . . . transmits electrical impulses to a remote counter which records quantities, controls automatic batching.

MODEL K . . . Printing Dial provides printed records of quantities metered for inventory control, etc.



MODEL F . . . relays voltage signal to a remote flow indicator or controller permitting remote observation and control of the flow rate.

MODEL RP . . . automatically delivers repeated predetermined quantities of liquids.

REMOTE PREDETERMINING COUNTER . . . records electrical impulses from meter permitting automatic delivery and shutoff control for predetermined quantities.

XACTO METER . . . the HEART of Bowser liquid handling systems

Mail to BOWSER, Inc.

1304 E. Creighton Ave., Fort Wayne, Indiana

Please send complete information illustrating the many types of Bowser systems available.

NAME_____

TITLE_____

COMPANY_____

STREET_____

CITY_____ STATE_____

XACTO . . . meters assure precision accuracy. Available in bronze, iron and all stainless steel construction.

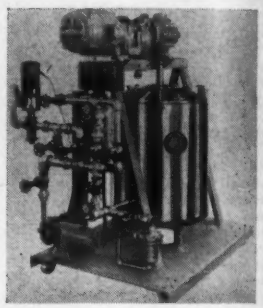
Bowser's full line of meters, accessories and controls combine to offer you today's most automatic, economical and modern liquid handling systems.

BOWSER ESTABLISHED 1885

5161 on Reader Service Slip

Experimental processor tests wide variety of products, processes

Tests heating, cooling, pasteurizing, or sterilizing aspects of product in advance. This is service offered by laboratory processor unit built of stainless steel, with 45 gal capacity.



Lab processor is 316 stainless

Unit may be operated at atmospheric pressure or can be sealed for vacuum or pressure heating or cooling. Four types of agitators are available in process tank.

Lab model processor for dairy, brewing or other food products is available for testing products or processes in customer plants, or at Cherry-Burrell's Little Falls, N.Y. factory.

A development of Cherry-Burrell Corp., 2400 Sixth St., S.W., Cedar Rapids, Iowa.

For more information circle 5162 on Reader Service Slip.

Change hammer mill screen while mill is still running

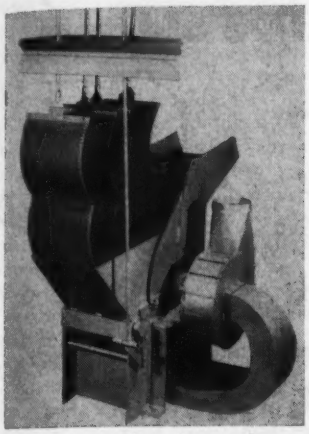
Uses-Features: Attachment for hammer mill permits screens to be replaced instantly from floor above while mill is running.

Thus, milling time is saved and operations continue virtually uninterrupted.

Design of attachment prevents leakage around mill.

Description: Extension handles on attachment permit any one of five selected screens, up to ¼" thick, to be inserted or removed.

Operator simply releases screen lock on floor above hammer mill, lifts up screen to be replaced, lowers new



Extension handles, shown at top above cross section of floor, permit operator to easily change screens in hammer mill

screen into position and relocks entire mechanism.

Device may be adapted to any ceiling height.

Attachment to permit hammer mill screens to be replaced while mill is still running is a product of Schutte Pulverizer Co., Incorporated, 878 Bailey Avenue, Buffalo 6, New York.

For more information circle 5163 on Reader Service Slip.

Continuous breading for small operator

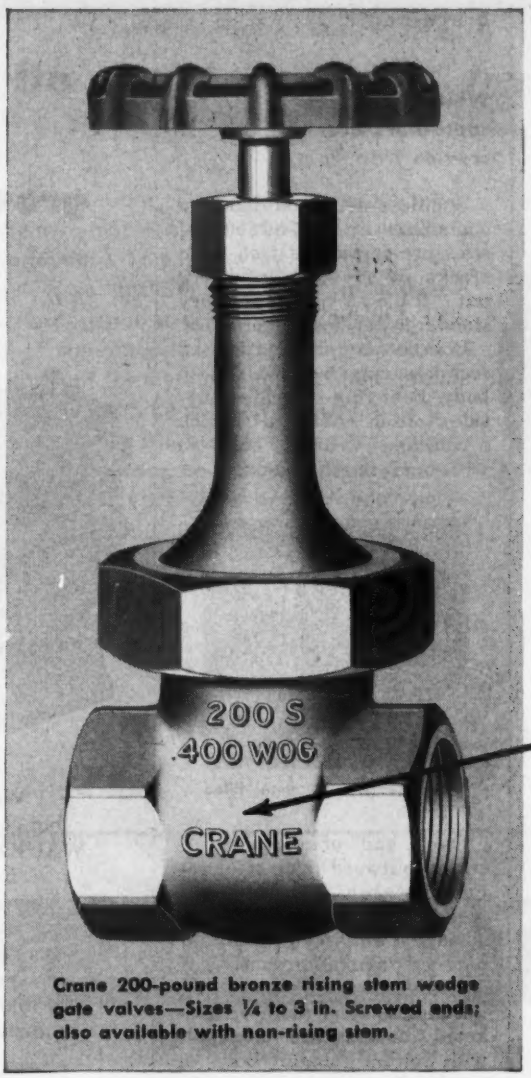
Machine for continuous breading and frying for small operators handling fish sticks, fried shrimp, poultry products and other prepared fried foods is described in one-page bulletin.

Unit has capacity of 300 to 600 pounds per hour. Cooking oil is controlled to $\pm 2°F$.

Breading lumps are almost entirely eliminated since the batter cannot drip into the breading.

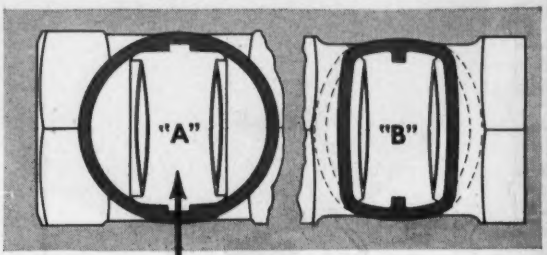
Bulletin 58-1 "Processing Less Than 600 Pounds of Breaded Products Per Hour?", is available from J. W. Greer Co., Wilmington, Mass.

For your copy simply circle 5164 on Reader Service Slip.



Crane 200-pound bronze rising stem wedge gate valves—Sizes ¼ to 3 in. Screwed ends; also available with non-rising stem.

Crane cylindrical body design ("A") distributes pressure load uniformly, resists distortion, prevents possibility of seat leakage under higher pressures. In ordinary, rectangularly shaped bodies ("B"), stresses concentrate where walls have shortest radius. Leakage and early failure may result from excessive deflection, and rupture may occur.



HERE

CRANE adds new strength and safety

to 200-Pound Bronze Gate Valves

Here is a bronze gate valve body design that provides essential strength where internal pressures are greatest . . . where line strains are most likely to concentrate.

And that's not all you get. The Exelloy seat rings are expanded into the body so that they can't loosen. There are wider hex ends which give easier, firmer wrench grip and resist distortion.

Another quality feature that Crane offers is the shoulder at the bottom of the threads in port ends to restrain the excessive entry of pipe that could cause damage to the valve seats.

You will find many uses for Crane 200-pound bronze gate valves in your plant—on steam, water, oil, gas, air, gasoline, light oils and volatile fluid lines.

For complete information about these new Crane bronze valves, see your local Crane Representative, or write to address below for Circular Ad-2285.

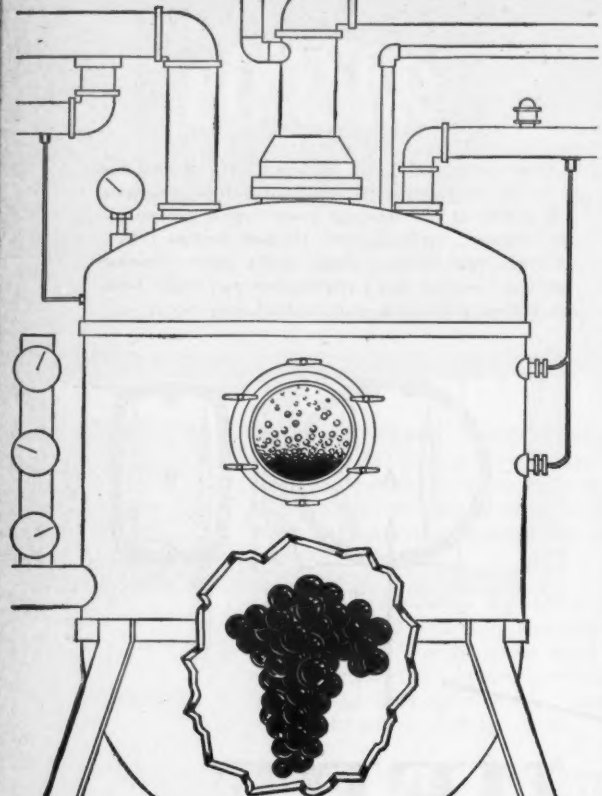
Send for Circular Ad-2285 today.

CRANE VALVES & FITTINGS

PIPE • PLUMBING • KITCHENS • HEATING • AIR CONDITIONING

Since 1855—Crane Co., General Offices: Chicago 5, Ill.—Branches and Wholesalers Serving All Areas

5165 on Reader Service Slip



Real Fruit® Flavors...

WITH THE FUGITIVE AROMAS *CAPTURED!*

You can improve your product amazingly—by use of FLAVOREX *real fruit flavors*. Our "Low Temp" process coaxes out and captures the very last drop of goodness in the natural fruit. Those delicately elusive, but important, volatiles now are collected and entrapped in our real fruit concentrates . . . so that all the full, rich, good taste goes directly into your product. Available—black raspberry, black cherry, grape, strawberry, blackberry, punch, lemon and orange—as real fruit pure concentrated juices. Or with other natural flavors for added strength. Write for samples and prices today.

Symbol of Fidelity

Better Flavors for Better Products

FLAVOREX CO., INC.

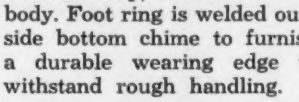
302 S. CENTRAL AVE., BALTIMORE 2, MD.

5166 on Reader Service Slip

Welded stainless containers are crevice free

Stainless steel food handling containers in 30 and 50 gal sizes are fabricated free from cracks or crevices inside or out. They meet sanitary standards for food operations.

Bottom is single pressed seamless cup, butt welded to body. Foot ring is welded outside bottom chime to furnish a durable wearing edge to withstand rough handling.



Rolled edges are metal filled

Open end of container is curled outward over steel reinforcing bar. Top curl and foot ring are filled with dairy solder of weld metal to eliminate contamination harboring crevices.

Stainless steel plain or gasketed covers are available with either single bolt or toggle closures.

Hackney stainless steel containers are products of Pressed Steel Tank Co., 1439 S. 66th St., Milwaukee 14, Wisc.

For more information circle 5167 on Reader Service Slip.

Pneumatic collecting system ups hammer mill capacity

Uses-Features: Hammer mills equipped with pneumatic, negative pressure collecting systems show up to 34 per cent increased capacity for grinding.

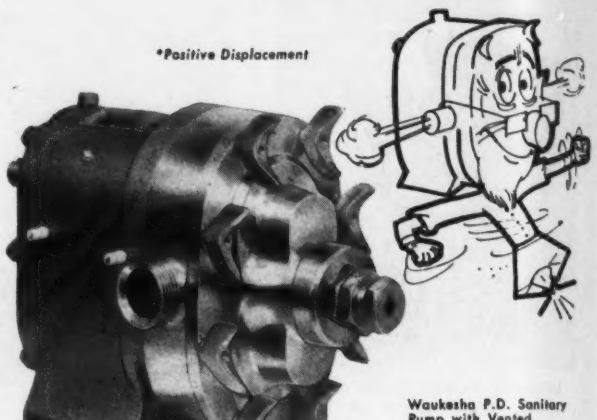
Tests show that grinding of corn was increased from 8 to 12 tons per hour; grinding of ¼" diameter alfalfa pellets from 5 to 7 tons/hr; grinding of oats from 4 to 6 tons/hr.

In addition to increased ca-

all WAUKESHA P. D.* PUMPS

grow up to be healthy active oldsters

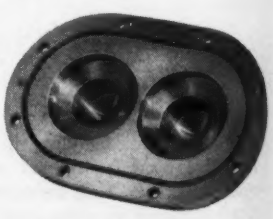
*Positive Displacement



Waukesha P.D. Sanitary Pump with Vented Cover.

WAUKESHA PUMPS grow old in service but stay young in performance. That's because WAUKESHA builds ruggedness and long life in them at the start. And they have many other virtues: quick, easy take-down, easy assembly and low maintenance, are examples. These are but a few of the many long-life features that make WAUKESHA far and away the leading rotary, positive displacement pump in the world. Why not send today for the catalog that describes *all* the user-benefits?

Re-usable Oval Ring replaces fussy paper gaskets . . . provides positive vacuum without excessive tightening of the pump head.



Larger shaft and stronger splines reduce wear by giving high rigidity to the impellers. Slotted stainless steel shaft-sleeve keep sleeve and shaft rotating together.

Waukesha FOUNDRY COMPANY

DEPT. F-9 • WAUKESHA, WISCONSIN

5168 on Reader Service Slip

pacity, tests also indicate that finished products are produced with less fines.

Also, when grinding alfalfa pellets through 5/32" diameter perforated screen with system, only dust collecting equipment necessary is secondary cyclone type dust collector.

Mechanical elevating is eliminated since system carries material directly to top of operating bins.

Description: Tests were conducted on eight identical model hammer mills equipped with 5/32" perforated screens.

Hammer mills were directly connected to 100 hp, 1800 rpm motors.

All mills were originally equipped with 30" diameter shaft-mounted centrifugal fans.

Two mills were converted for tests, using negative pressure collecting systems to convey ground products.

Pneumatic pressure collecting systems, used in conversions, incorporate a 40 hp, 3500 rpm motor and a 10" diameter conveying line.

Pneumatic, negative pressure collecting systems (PneuVac) are a product of Sprout, Waldron & Co., Inc., 130 Logan St., Muncy, Pa.

For more information circle 5169 on Reader Service Slip.

Grate magnet offers four times greater collection surface

Grate magnet for tramp iron removal presents four times more collection surface than ordinary grate units.

Ceramic magnet collecting tubes have continuous poles along their entire length, thus eliminating dead spots where iron particles may slip past.

Units are available in wing-type for hopper or floor installation and drawer-type for closed chutes and ducts.

Indox Grate Magnet is product of Stearns Magnetic Products Div., The Indiana Steel Products Co., Valparaiso, Ind.

For more information circle 5170 on Reader Service Slip.

"We're not agin' automation"

... but it has limitations. That's why these men are pouring Palmyron for Hubbell castings at Hubbell's Wisconsin foundry. This is one job that machines will probably never perform here. Why? Because it takes long experience and real craftsmanship to meet Hubbell standards for this critical operation. This is typical of the careful attention that goes into every component, because at Hubbell, quality has been and always will be more important than volume. ***"From castings to finished controls... every inch HUBBELL"*** is more than a slogan—it's a fact! Find out for yourself the next time you order refrigeration controls.

Hubbell CONTROLS

HUBBELL CORPORATION

MUNDELEIN, ILLINOIS

BACK PRESSURE REGULATOR VALVES • DUAL PRESSURE REGULATOR VALVES • AUTOMATIC SUCTION STOP VALVES • SOLENOID VALVES • GAUGES • SAFETY RELIEF VALVES

"Castings to finished controls... every inch HUBBELL!"

5171 on Reader Service Slip

WHITTEN

HYPOWR GELATIN developed especially for —

- Gelatin Desserts
- Marshmallow
- Canned Jellied Soups

XXTRA-FINE SOLUBILIZED GELATIN

Excellent for clarifying fruit juices, wine and beer. *No HEAT necessary.*

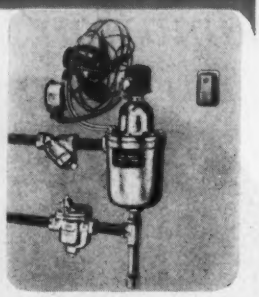
J. O. WHITTEN CO., INC.
Winchester, Massachusetts
"Gelatin Manufacturers since 1903"

GELATIN

5172 on Reader Service Slip

GET "CLEAN" HUMIDIFICATION

no "fallout" with ARMSTRONG STEAM HUMIDIFIERS



No "fallout" of mineral dust or water to contaminate your products when you use Armstrong Steam Humidifiers. Steam is distilled vapor—contains no solids. And, the inner chamber of Armstrong humidifiers is steam-jacketed to evaporate any condcondensation.

USES

- Processing and Storage
- Cold Storage Rooms
- Laboratories
- Packaging Departments

Armstrongs give you other advantages, too—simple design, low-cost, easy to install (like unit heaters), accurate humidistat control (within 2 to 4% of setting), high-quality construction. They're guaranteed to satisfy.

Several models available . . . discharge directly into room, or into ducts or plenums.

Get the full story on humidification, plus complete data on Armstrong Steam Humidifiers, in Bulletin 500. Ask your local Armstrong Representative for a copy, or write today to:

ARMSTRONG MACHINE WORKS
8815 Maple Street, Three Rivers, Michigan

5173 on Reader Service Slip

Count CANS BOTTLES PACKAGES with this NEW

ELECTRICAL COUNTING SYSTEM
Outlasts any previous system

Completely rustproof Contactor unaffected by washdowns, juices, or dirt — no production count tampering.

Counter can be placed in an office or other convenient area for immediate and continuous record of production.

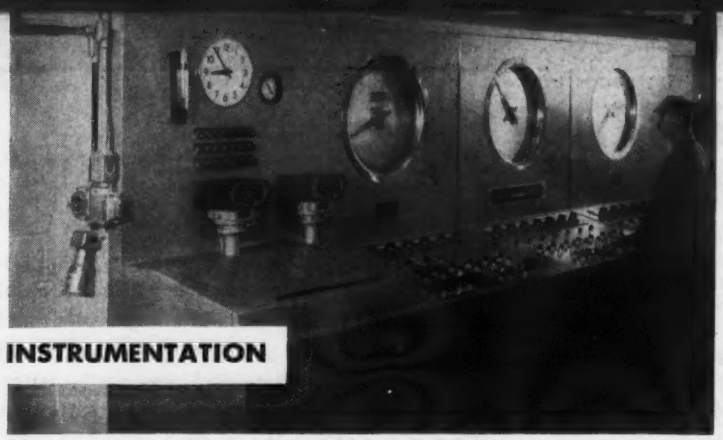
DURANT MFG. CO.
1951 N. Buffum St., Milwaukee 1, Wis.
51 Thurbers Ave., Providence 5, R. I.

Send for Bulletin E-S-5-X

Representatives in PRINCIPAL CITIES

PRODUCTIMETERS
SINCE 1879 Count Everything

5174 on Reader Service Slip



fp INSTRUMENTATION

Above view of control panel shows three scale dials. Note rectangular meters on left which indicate flow of liquid ingredients. Back of control panel is built into special atmosphere controlled room. Filtered fresh air is maintained at 0.5" WG to keep electrical components and controls in rear of panel in a safe, dust-free atmosphere. If pressure in this sealed room falls below 0.2" WG, power is automatically shut off to all automatic controls

Using up to 21 ingredients, automatic batching equipment at John W. Eshelman & Sons enables one man to . . .

Formulate 3 ton feed batch in less than 5 minutes

To handle special feed formulas for customers on a faster production basis, John W. Eshelman & Sons, York, Pa. installed automatic batching equipment.

Heart of the system is a 16-foot control console. Console houses a central electronic system and three dial scales for automatically controlling flow from 38 bins into three weigh hoppers (See photo).

There are 25 bulk ingredient bins plus 13 pre-mix bins. Any 21 of these 38 variables can be included in each batch.

One operator, with only nominal training, can operate entire control panel.

Using pre-determined formula mixtures, operator sets various dials on control panel to select proper amount of each ingredient.

Automatic system then charges weigh hoppers with proper number of pounds of each ingredient and empties scales into a mixer.

Micro-nutrients, required in small amounts, are weighed manually and dumped into mixer through a separate pre-mix hopper.

Automatically mixes

When all ingredients are in, batch is automatically mixed for proper time.

Mixed feed is discharged to bins for storage, to further processing such as pelleting, to bagging room for packaging, or directly into railroad cars or trucks for bulk shipment.

A counter on control panel records number of batches delivered. When total amount of any particular feed formula has been made, unit automatically shuts itself off.

If run is not completed, but a supply bin runs dry, unit automatically goes on stand-by until it is shut off or until bin is replenished.

Pilot lights give a continuous indication of flow of ingredients into various weigh hoppers.

Two of the three scales weigh up to 5000 pounds each. Weighings on these are correct to ± 2.5 pounds. The third scale weighs up to 1000 pounds, with weighings correct to $\pm \frac{1}{2}$ pound.

One-man operation

One man can now formulate and mix a three ton batch of feed, containing up to 21 ingredients, in less than five minutes.

Plant works against a regular production schedule of 30 to 40 tons of feed per hour. Even with this schedule, special formulas can be easily and quickly handled by one man.

Interruption of runs to change over from one feed formula to another takes only a matter of seconds.

The plant usually produces and has available over 100 separate formulas during any particular period.

Operator can change a formula, mix new formula, bag it or deliver it in bulk, and then resume regular production in

just a few minutes.

Faster production, along with storage space in supply bins for over 100,000 bushels has almost doubled mill's capacity.

Control console and indicating batch equipment used at John W. Eshelman & Sons was provided by The Howe Scale Co., Rutland, Vermont.

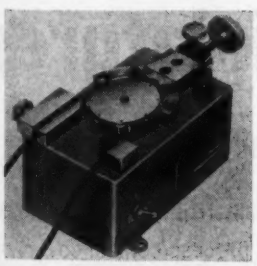
For more information circle 5175 on Reader Service Slip.

Continuously pumps, meters small quantities of liquid

Uses: Continuous-duty metering pumps may be used to move small quantities of liquid or gas into process vessels, or as auxiliary pumping equipment. Additional use is as research tool.

Features: Precisely meters as little as 2 ml per day up to 75 ml per minute under aseptic conditions.

Typical applications include: **(1)** micro-feeding anti-foams, substrates, or media into food or fermentation batches; **(2)** for metering solutions in continuous operations such as fermentation.



Pumped fluid does not touch pump

Description: Liquid is compressed forward through plastic tube by peristaltic-like action of rollers, spaced around a rotor.

Overall dimensions of pump housing are 3⅝" wide by 5¼" long by 3" high. Pump is 4¼" high.

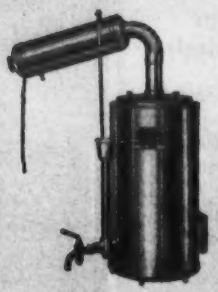
Model PA Peristaltic Pumps are products of New Brunswick Scientific Co., Somerset St., New Brunswick, N.J.

For more information circle 5176 on Reader Service Slip.

Water Purity

• FOR EVERY NEED •

American Sterilizer WATER STILLS

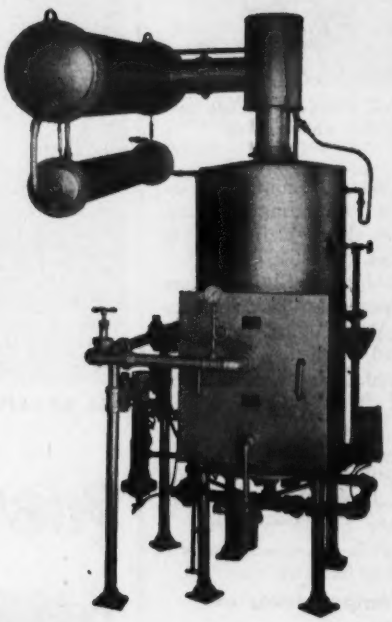


Typical Laboratory Still: Electric heated. ½ to 10 gallons per hour capacity.

½ to 500 gallons per hour

* ½ to 500 gallons per hour Evaporator capacity range.
* Steam, Electric or Gas heated installations . . . Kerosene or Gasoline heated Portable Units.
* Fully automatic or manual controls.
* Single, Double and Triple distilling systems.
* Storage Tank capacities from 5 to 1000 gallons.
* All internal parts heavily coated with pure block tin. Stainless steel, Aluminum or special alloys also available.

•



Typical Industrial Unit: Mass production steam heated Still with automatic controls. 50 to 500 gallons per hour capacity.

Thousands of Amsco Water Stills in laboratories, industrial or processing plants and hospitals throughout the world are producing distilled water of the very highest purity . . . economically, dependably and efficiently.

Whether the distillate quantity is small or large . . . for exacting laboratory experiments, or for mass processing . . . the purity of water is the same, exceeding the standard set up by the United States Pharmacopeia.

Whatever your water conditions or distillate requirements there is an Amsco distilling system especially adapted to your needs. Write for detailed information . . . Bulletin IC-601.

Deionizers . . .

5 to 1000 gallons per hour . . . with cation or anion resin in single bed or dual bed arrangement.

•

AMERICAN STERILIZER

ERIE • PENNSYLVANIA

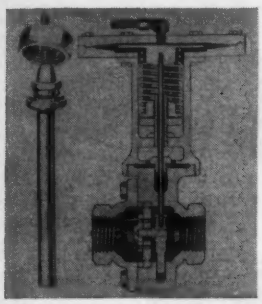
INDUSTRIAL and SCIENTIFIC DIVISION

5177 on Reader Service Slip

Sanitary bulbs, fittings featured in temp control

Sliding gate temperature control valve with sanitary thermal bulbs and fittings is described in two bulletins.

Controls may be used where thermal bulb is immersed in sanitary food process lines.



Bulbs and fittings are made of polished stainless steel

Bulletins give complete descriptions including photos, diagrams, valve sizing charts and prices.

"OPW-Jordan Sliding Gate Self-Operating Temperature Control Valve", bulletins SRB 15-58 and J-180 are available from Jordan Industrial Sales Div. of OPW Corp., 6013 Wiehe Rd., Cincinnati 13, Ohio.

For your copies simply circle 5178 on Reader Service Slip.

Takes temperatures of rotating surfaces

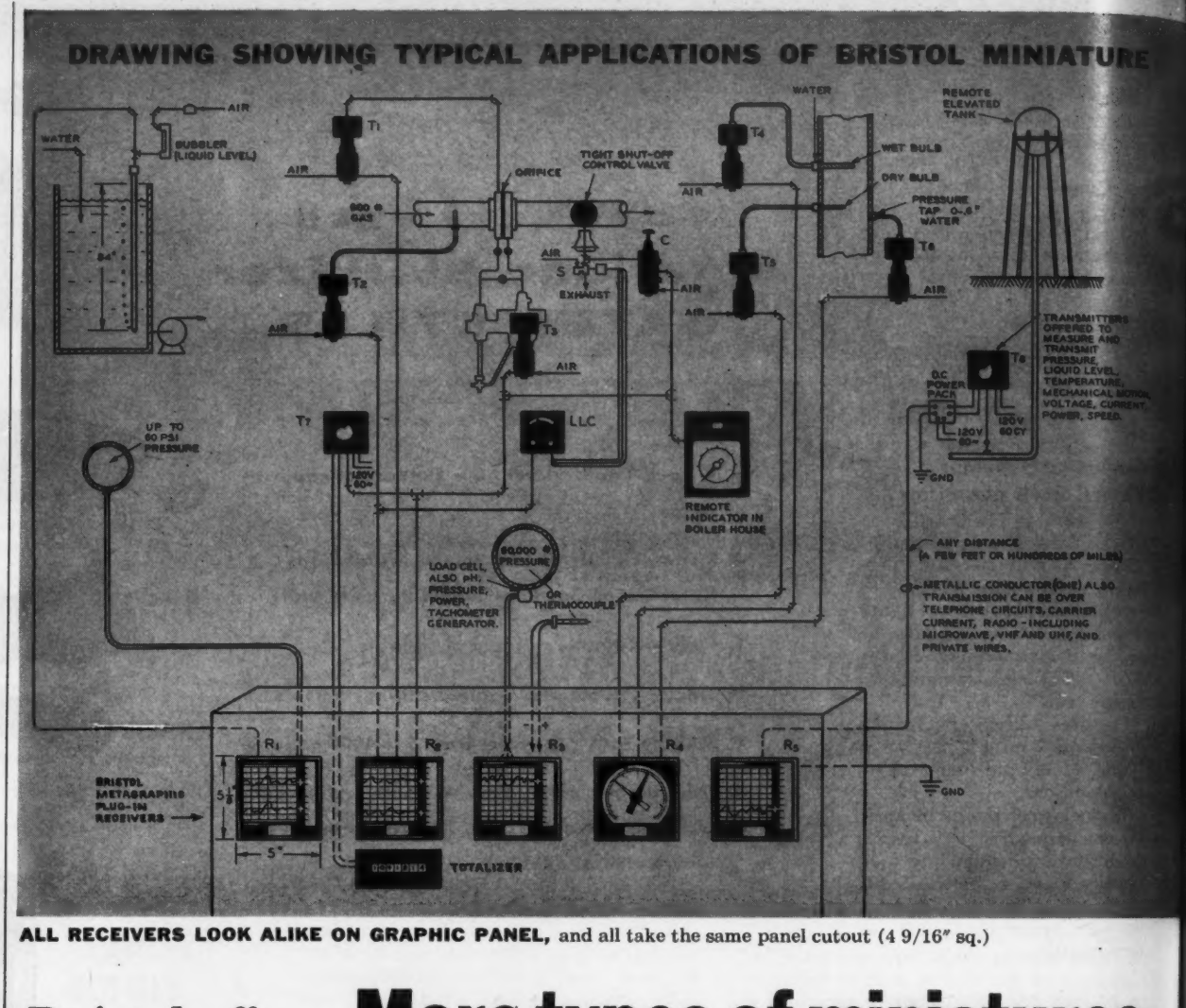
Thermocouples take surface temperature of rotating rolls, shafts, and bearings for temperature control.

Sensing element is a brass plug which is flush mounted in spring loaded Teflon plunger. Teflon body bears against roller, forming a protective thermocouple shield from surrounding air.

Natural lubricity of Teflon prevents buildup of friction heat and damage to roll.

Conax Roll Temperature Thermocouples are products of Conax Corp., 2300 Walden Ave., Buffalo 25, N. Y.

For more information circle 5179 on Reader Service Slip.


DRAWING SHOWING TYPICAL APPLICATIONS OF BRISTOL MINIATURE
AIR
WATER
BUBBLER (LIQUID LEVEL)
ORIFICE
TIGHT SHUT-OFF CONTROL VALVE
EXHAUST
WET BULB
DRY BULB
PRESSURE TAP 0-6" WATER
REMOTE ELEVATED TANK
TRANSMITTERS OFFERED TO MEASURE AND TRANSMIT PRESSURE, LIQUID LEVEL, TEMPERATURE, MECHANICAL MOTION, VOLTAGE, CURRENT, POWER, SPEED.
D.C. POWER PACK
120V 60~
GND
UP TO 60 PSI PRESSURE
LLC
REMOTE INDICATOR IN BOILER HOUSE
ANY DISTANCE (A FEW FEET OR HUNDREDS OF MILES)
METALLIC CONDUCTOR (ONE) ALSO TRANSMISSION CAN BE OVER TELEPHONE CIRCUITS, CARRIER CURRENT, RADIO - INCLUDING MICROWAVE, VHF AND UHF, AND PRIVATE WIRES.
LOAD CELL, ALSO PH, PRESSURE, POWER, TACHOMETER GENERATOR.
60,000 # PRESSURE
OR THERMOCOUPLE
BRISTOL METAGRAPHIC PLUG-IN RECEIVERS
TOTALIZER

ALL RECEIVERS LOOK ALIKE ON GRAPHIC PANEL, and all take the same panel cutout (4 9/16″ sq.)

Bristol offers: More types of miniatures

BRISTOL METAGRAPHIC INDICATORS feature easy-to-read 9-inch effective length scale and interchangeability with recorders of same type.

Bristol Miniature Instrument Systems offer broadest measurement range and widest process control coverage:

- ***Pneumatic Transmission***
- ***Electronic Potentiometers and Bridges***
- ***Telemetering Instruments***
- ***Recording Gauges***

Automatically Controlling, Recording, and Indicating Models

INSTRUMENT SYSTEMS

LEGEND

BRISTOL* METAGRAPHIC TRANSMITTERS

T_1 Pressure
T_2 Temperature
T_3 Differential Pressure or Flow
T_4 Temperature (Wet Bulb)
T_5 Temperature (Dry Bulb)
T_6 Pressure (as low as 0 to 5 mm mercury)
T_7 Integrator
T_8 Liquid Level Metameter Telemeter

*Metagraphic Transmitters are available for temperature, pressure, vacuum, differential pressure, flow, liquid level, mechanical motion, and through the use of the Bristol Dynamaster† Electronic Transmitter any input signal in the form of voltage, current, or change of resistance, capacitance, or inductance such as pH, speed, strain, density, etc.

BRISTOL RECEIVERS

R_1 Pressure or/and Liquid Level Recorder
R_2 Metagraphic Recorder (up to 2 records and 1 indicator)
R_3 Dynamaster Electronic Potentiometer or Bridge
R_4 Metagraphic Indicator—one, two, or three pointers for wide range of measurements or two pointers and one manual remote control.
R_5 Metameter† Telemeter

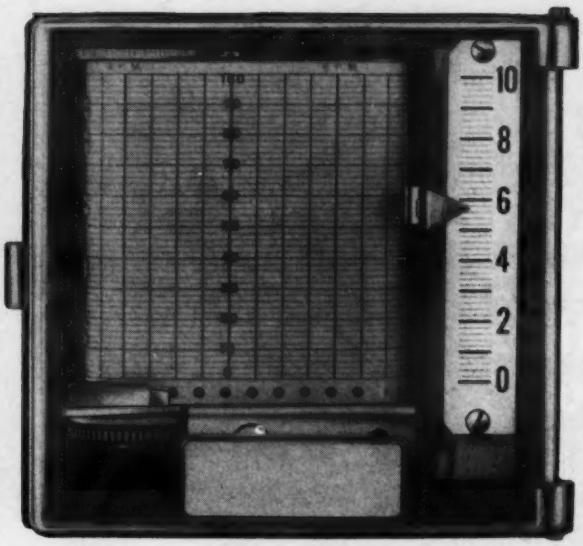
†T.M. Reg. U.S. Pat. Off.

BRISTOL METAGRAPHIC CONTROLLERS

(36 models to choose from—by far widest variety available)

Five Modes of Control

1. On-Off (Fixed High-Gain)
2. Proportional (Adjustable Gain)
3. Proportional-plus-Reset
4. Fixed-Proportional plus Fast-Reset
5. Proportional-plus-Reset-plus Derivative



BRISTOL METAGRAPHIC MINIATURE RECORDERS—whether electronic, pneumatic, telemetering, or gauge types—present a uniform, pleasing easy-to-read panel appearance, measure only 5″ x 5 1/8″, fit same 4 9/16″ square panel cutout.

than any other instrument company

. . . plus a complete line of full-sized instruments

Bristol makes them all. Whatever your choice in instruments, you need look no farther than the complete Bristol line—pneumatic, electronic, miniature telemeters and gauges—all in a *planned* line.

Planned to give graphic panel installations a neat, pleasing, matching appearance.

Planned to give you the widest possible measurement range, the broadest instrument coverage, of any line.

Planned to free you from costly pre-installation decisions as far as practically possible—true plug-in instruments; widest practical number of instrument substitutions; easiest, fastest range changes.

Planned to give you any type of instrumentation—electronic, pneumatic or mixed systems in plug-in miniature construction.

Planned to give you the results of modern human-engineering studies in chart, dial, and indicator visibility and readability.

Bristol makes all types, all sizes of instruments, can give you all control modes. That's why Bristol application engineers don't need to shade the facts. When they make an instrument recommendation it's based on our unbiased consideration of *your* problem alone.

Write for complete technical data on Bristol miniature instruments today. The Bristol Company, 143 Bristol Road, Waterbury 20, Conn. a-6

BRISTOL *TRAIL-BLAZERS IN PROCESS AUTOMATION*

AUTOMATIC CONTROLLING, RECORDING AND TELEMETERING INSTRUMENTS

5180 on Reader Service Slip

Level control completely outside of tank

Uses: For detecting and controlling levels of either liquids or granular solids in tanks or bins.

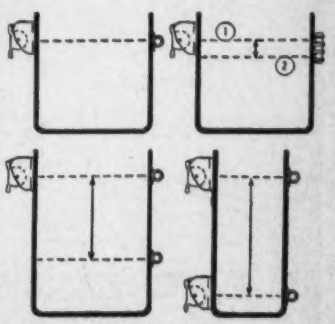
Features: No part of radioactive detector-controller extends into tank or vessel.

Being installed external to tank, it is free from fouling by process material and is readily accessible for maintenance.

Instrument sensitivities are available to ±1/16″.

Description: Made up of a radioactive source and a detector, unit can be used in either of two operations.

It can be installed so as to provide a relay closure signal when level rises above or falls below the level of the detector.



Four arrangements of level control are explained in article

It can also be installed so that both a high-level and a low-level signal can be provided from one instrument.

Source of radiation is installed either opposite detector or across the chord of the tank.

Source housing is designed to provide more than adequate shielding so as to reduce external radiation field well below acceptable tolerances.

Radiation field required at detectors for operation is only 0.2 mr per hour.

Operation: For methods of operation are shown in above diagrams.

Top left diagram shows unit as high or low-level alarm. Source of radiation is shown

(*Continued on next page*)

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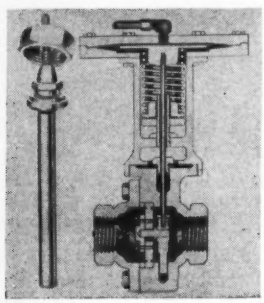

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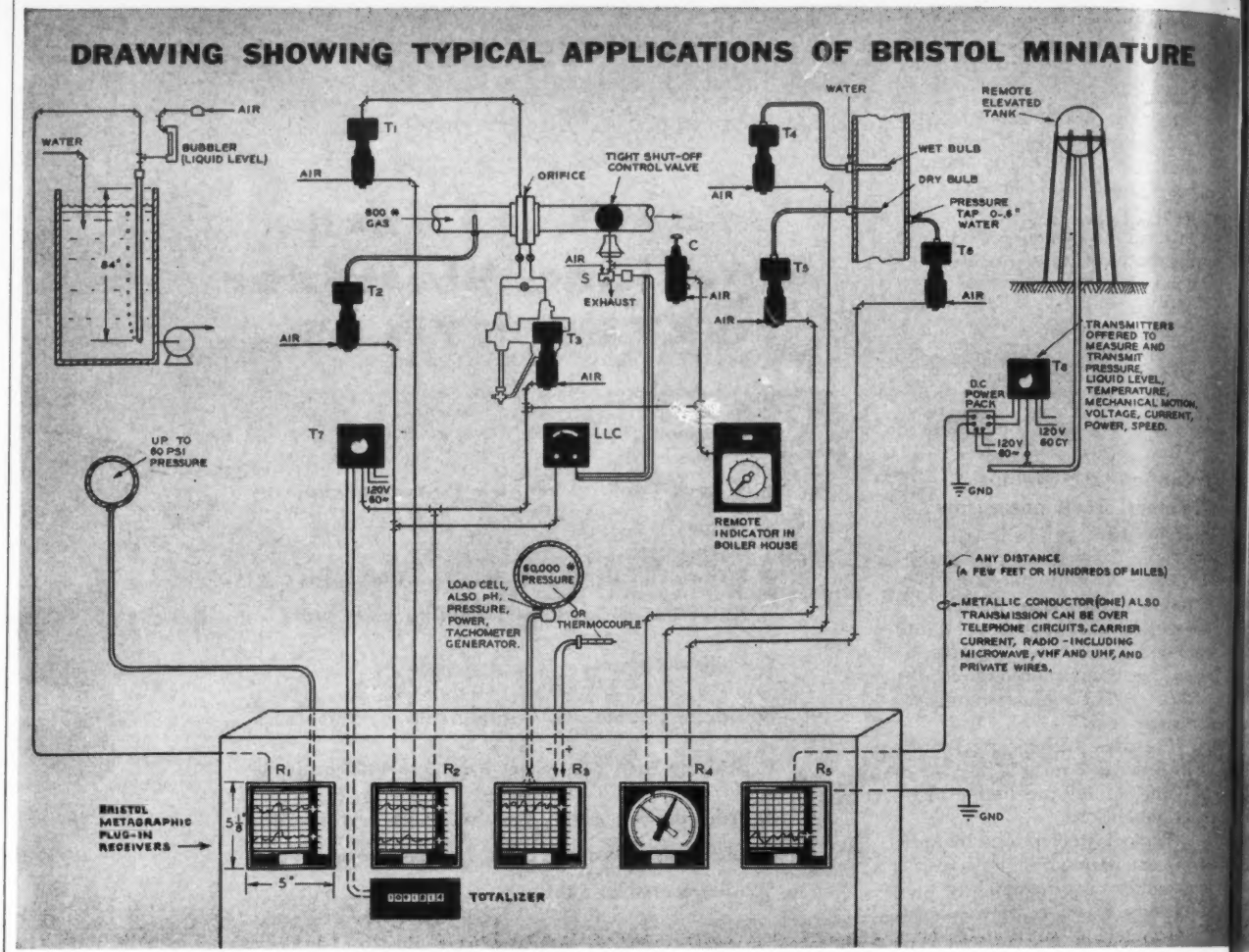
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TRANSMITTERS OFFERED TO MEASURE AND TRANSMIT PRESSURE, LIQUID LEVEL, TEMPERATURE, MECHANICAL MOTION, VOLTAGE, CURRENT, POWER, SPEED.
D.C. POWER PACK
120V 60CY
GND
UP TO 60 PSI PRESSURE
120V 60~
LLC
REMOTE INDICATOR IN BOILER HOUSE
ANY DISTANCE (A FEW FEET OR HUNDREDS OF MILES)
METALLIC CONDUCTOR (ONE) ALSO TRANSMISSION CAN BE OVER TELEPHONE CIRCUITS, CARRIER CURRENT, RADIO - INCLUDING MICROWAVE, VHF AND UHF, AND PRIVATE WIRES.
60,000 # PRESSURE
OR THERMOCOUPLE
LOAD CELL, ALSO pH, PRESSURE, POWER, TACHOMETER GENERATOR.
BRISTOL METAGRAPHIC PLUG-IN RECEIVERS
5 1/8"
5"
TOTALIZER

ALL RECEIVERS LOOK ALIKE ON GRAPHIC PANEL, and all take the same panel cutout (4 9/16" sq.)

Bristol offers: **More types of miniatures**

BRISTOL METAGRAPHIC INDICATORS feature easy-to-read 9-inch effective length scale and interchangeability with recorders of same type.

Bristol Miniature Instrument Systems offer broadest measurement range and widest process control coverage:

- ***Pneumatic Transmission***
- ***Electronic Potentiometers and Bridges***
- ***Telemetering Instruments***
- ***Recording Gauges***

Automatically Controlling, Recording, and Indicating Models

INSTRUMENT SYSTEMS

LEGEND

BRISTOL* METAGRAPHIC TRANSMITTERS

T_1 Pressure
T_2 Temperature
T_3 Differential Pressure or Flow
T_4 Temperature (Wet Bulb)
T_5 Temperature (Dry Bulb)
T_6 Pressure (as low as 0 to 5 mm mercury)
T_7 Integrator
T_8 Liquid Level Metameter Telemeter

*Metagraphic Transmitters are available for temperature, pressure, vacuum, differential pressure, flow, liquid level, mechanical motion, and through the use of the Bristol Dynamaster† Electronic Transmitter any input signal in the form of voltage, current, or change of resistance, capacitance, or inductance such as pH, speed, strain, density, etc.

BRISTOL RECEIVERS

R_1 Pressure or/and Liquid Level Recorder
R_2 Metagraphic Recorder (up to 2 records and 1 indicator)
R_3 Dynamaster Electronic Potentiometer or Bridge
R_4 Metagraphic Indicator—one, two, or three pointers for wide range of measurements or two pointers and one manual remote control.
R_5 Metameter† Telemeter

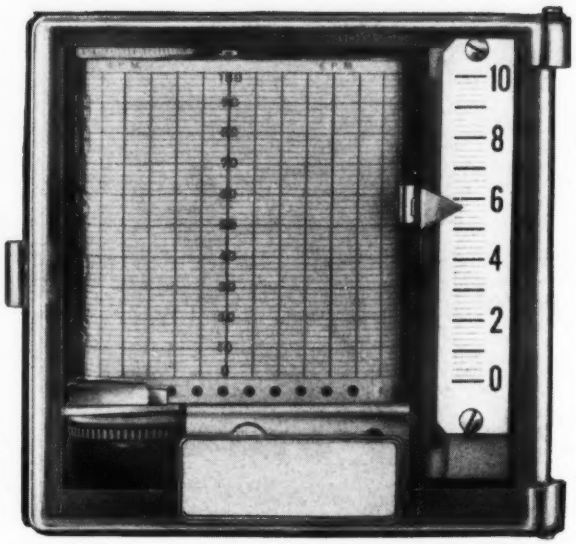
†T.M. Reg. U.S. Pat. Off.

BRISTOL METAGRAPHIC CONTROLLERS

(36 models to choose from—by far widest variety available)

Five Modes of Control

1. On-Off (Fixed High-Gain)
2. Proportional (Adjustable Gain)
3. Proportional-plus-Reset
4. Fixed-Proportional plus Fast-Reset
5. Proportional-plus-Reset-plus Derivative



BRISTOL METAGRAPHIC MINIATURE RECORDERS—whether electronic, pneumatic, telemetering, or gauge types—present a uniform, pleasing easy-to-read panel appearance, measure only 5″ x 5 1/8″, fit same 4 9/16″ square panel cutout.

than any other instrument company

. . . plus a complete line of full-sized instruments

Bristol makes them all. Whatever your choice in instruments, you need look no farther than the complete Bristol line—pneumatic, electronic, miniature telemeters and gauges—all in a *planned* line.

Planned to give graphic panel installations a neat, pleasing, matching appearance.

Planned to give you the widest possible measurement range, the broadest instrument coverage, of any line.

Planned to free you from costly pre-installation decisions as far as practically possible—true plug-in instruments; widest practical number of instrument substitutions; easiest, fastest range changes.

Planned to give you any type of instrumentation—electronic, pneumatic or mixed systems in plug-in miniature construction.

Planned to give you the results of modern human-engineering studies in chart, dial, and indicator visibility and readability.

Bristol makes all types, all sizes of instruments, can give you all control modes. That's why Bristol application engineers don't need to shade the facts. When they make an instrument recommendation it's based on our unbiased consideration of *your* problem alone.

Write for complete technical data on Bristol miniature instruments today. The Bristol Company, 143 Bristol Road, Waterbury 20, Conn. B.6

BRISTOL *TRAIL-BLAZERS IN PROCESS AUTOMATION*

AUTOMATIC CONTROLLING, RECORDING AND TELEMETERING INSTRUMENTS

5180 on Reader Service Slip

Level control completely outside of tank

Uses: For detecting and controlling levels of either liquids or granular solids in tanks or bins.

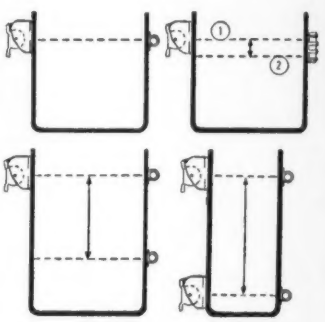
Features: No part of radioactive detector-controller extends into tank or vessel.

Being installed external to tank, it is free from fouling by process material and is readily accessible for maintenance.

Instrument sensitivities are available to ±1/16″.

Description: Made up of a radioactive source and a detector, unit can be used in either of two operations.

It can be installed so as to provide a relay closure signal when level rises above or falls below the level of the detector.



Four arrangements of level control are explained in article

It can also be installed so that both a high-level and a low-level signal can be provided from one instrument.

Source of radiation is installed either opposite detector or across the chord of the tank.

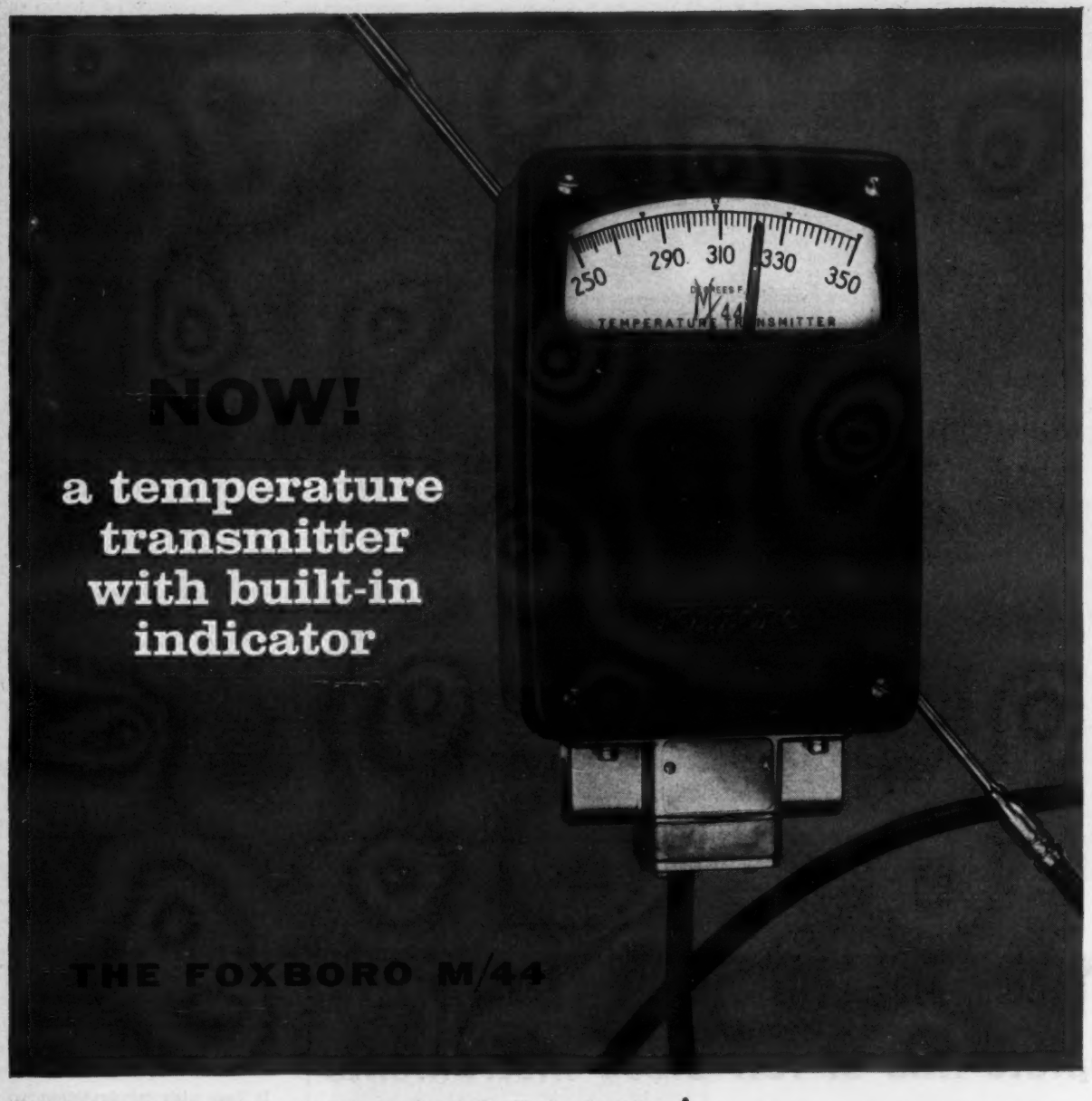
Source housing is designed to provide more than adequate shielding so as to reduce external radiation field well below acceptable tolerances.

Radiation field required at detectors for operation is only 0.2 mr per hour.

Operation: For methods of operation are shown in above diagrams.

Top left diagram shows unit as high or low-level alarm. Source of radiation is shown

(*Continued on next page*)



NOW!

a temperature transmitter with built-in indicator

THE FOXBORO M/44

Here's a brand new instrument engineered specifically for the job of indicating and transmitting temperature.

The new Foxboro M/44 *Indicating* Temperature Transmitter offers the inherent simplicity of a motion balance instrument. It works with any filled thermal system — transmits its output pressure to any remote 3-15 psi recorder, controller, or indicator.

The M/44's indicating scale and fluorescent red pointer are visible up to 20 feet away. And since the pointer is directly linked to the measuring element, the instrument continues to indicate process temperature even in event of an air supply failure.

The new M/44 is one of the many advanced Foxboro instruments for measurement and control of temperature from —450 to +2800. Others are listed at the right. Ask your Foxboro Field Engineer about any of them. Or write The Foxboro Company, 929 Neponset Avenue, Foxboro, Massachusetts.

COMPLETE TEMPERATURE INSTRUMENTATION

PRIMARY ELEMENTS
Complete selection for filled thermal systems, and for electric resistance bulb and thermocouple type systems

TRANSMITTERS
Foxboro motion balance type (shown above) for local indication and simplicity, or Type 12A force balance for maximum overrange protection.

CONTROLLERS, INDICATORS, RECORDERS } air, electric, and electronic operated

FOXBORO
REG. U.S. PAT. OFF.
TEMPERATURE MEASUREMENT AND CONTROL

5181 on Reader Service Slip

(*Continued from preceding page*)

on left side of tank and detector unit is shown directly opposite.

As material moves above level of detector, radiation is cut off, causing output relay to change position.

When material drops below level of detector, it is illuminated and output relay is thrown in its opposite position.

Top right diagram shows detector mounted vertically on right side of tank. This provides narrow band control.

When material moves above position 1, a signal is provided from output relay. The opposite signal is provided when material drops below level 2.

Wide band control is provided by using two detectors on right side of tank, as shown in bottom left diagram.

Combining two source units with two detector units, shown in bottom right diagram, offers extra wide band control.

AccuRay tank level detector-controller is a product of Industrial Nucleonics Corp., 1205 Chesapeake Ave., Columbus 12, Ohio.

For more information circle 5182 on Reader Service Slip.

Steam-water flow control offers greater safety in wash-down operations

Steam-water mixer maintains water at a given temperature where steam and water are mixed for wash-down operations.

Water temperatures up to 200°F can be delivered by mixer at rates up to 14 gpm, depending upon water temperature desired.

Mixer compensates for variations in supply lines.

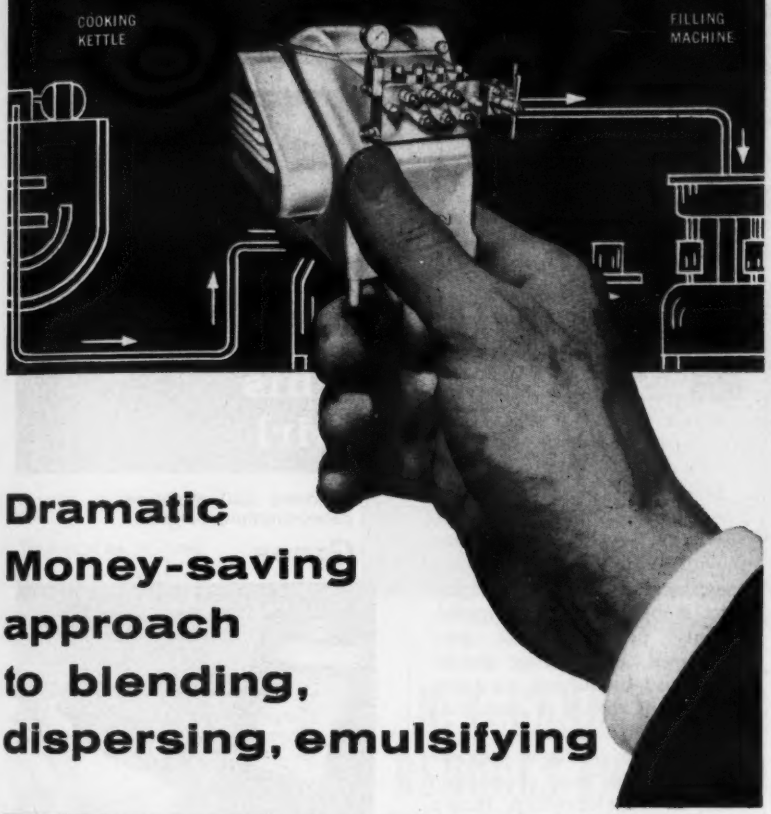
A floating piston in mixer controls and equalizes flow of steam and water before they enter mixing chamber.

Check valves are built into mixer inlets to prevent interchange of steam and cold water when mixer is idle.

Steam-water mixer is a product of The Powers Regulator Co., 3434 Oakton St., Skokie, Ill.

For more information circle 5183 on Reader Service Slip.

HOMOGENIZING



Dramatic Money-saving approach to blending, dispersing, emulsifying

Some Typical Applications of GTA

Flavor emulsions and extracts
Beverage concentrates
Fruit juices and concentrates
Tomato products
Chocolate and Butterscotch mixes and syrups
Spices, spice oils and mustard
Baby foods
Soups
Cheese spreads
Mayonnaise
Dispersion of vegetable colors
Dispersion of fruit pulp
Plus . . . many classified applications in food laboratories and for new formula development

Gaulin *Particle Control* . . . plus GTA . . . gives you the *right* answer on the most inexpensive method to disperse, emulsify or blend your product.

- Homogenizers in GTA Bulletin H-55.
- Sub-Micron Dispersers in GTA Bulletin SMD-55.
- RE* Colloid Mills in GTA Bulletin C-57.
- Laboratory Homogenizers in GTA Bulletin LH-55.

GTA shows how to: Improve uniformity; stop separation; accent taste; improve texture; speed chemical reactions; reduce amount of materials needed; and easily control and duplicate your product.

It's easy to try Particle Control. Rent a Gaulin Laboratory Homogenizer or Colloid Mill for only $75.00 a month and see how your product can be made better, faster and cheaper.

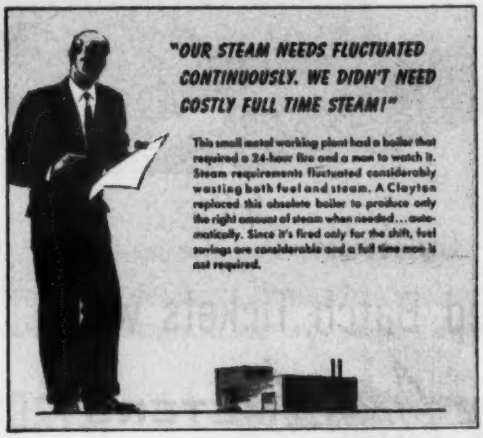
Gaulin TRADE MARK
MANTON Gaulin
59 Garden Street, Everett 49, Mass.
World's largest manufacturer of stainless steel reciprocating, rotary, pressure exchange pumps, dispersers, homogenizers and colloid mills

5184 on Reader Service Slip

How a Clayton STEAM GENERATOR

"WE WERE FACED WITH AN OBSOLETE CENTRAL BOILER ROOM AND DETERIORATING TRANSMISSION LINES"

This well known chemical company had a sprawling plant with long transmission lines and condensation problems. Fluctuating steam needs throughout the plant made steam production a problem. The ordinary boiler had to be kept at full pressure all day . . . fired all night. Seven Clayton Generators strategetically located now provide just the right amount of steam—when and where needed. They are shut down at night. These seven Clayton generators installed cost less than the cost of new transmission lines.

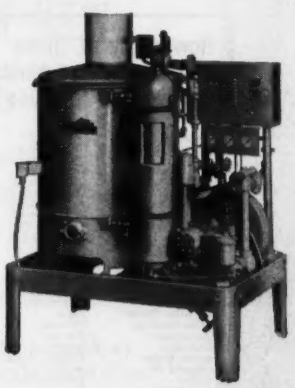


"OUR STEAM NEEDS FLUCTUATED CONTINUOUSLY. WE DIDN'T NEED COSTLY FULL TIME STEAM!"

This small metal working plant had a boiler that required a 24-hour fire and a man to watch it. Steam requirements fluctuated considerably wasting both fuel and steam. A Clayton replaced this obsolete boiler to produce only the right amount of steam when needed . . . automatically. Since it's fired only for the shift, fuel savings are considerable and a full time man is not required.

SOLVED THREE *different* STEAM PROBLEMS!

These actual case histories represent only a few of the reasons why smart business men buy Clayton Steam Generators. Basically the story is more steam at less cost in only one fourth the space occupied by ordinary steam boilers. They cost less to install too . . . no stacks to erect, no walls to knock out, lower rigging expense and lower hauling costs. The secret of Clayton's higher efficiency is *controlled circulation*—no space consuming straight tubes, but instead, the principle of using a coil without fired vessels . . . easier to operate and maintain. From a cold start, Claytons produce steam in 3 minutes. Let a Clayton representative give you the complete facts.



"IT WAS HOPELESS! WE NEEDED MORE STEAM AND WE DIDN'T HAVE ROOM FOR IT!"

Here was a well known beverage syrup company located in "midtown" squeezed in between buildings on all sides. To meet its additional steam needs, it went in only one direction . . . up! Since a Clayton produces the same amount of steam in only one fourth the space and weighs only a fraction as much as an ordinary boiler, it was relatively simple to put two Clayton steam generators on the roof! The installation was quick and inexpensive.

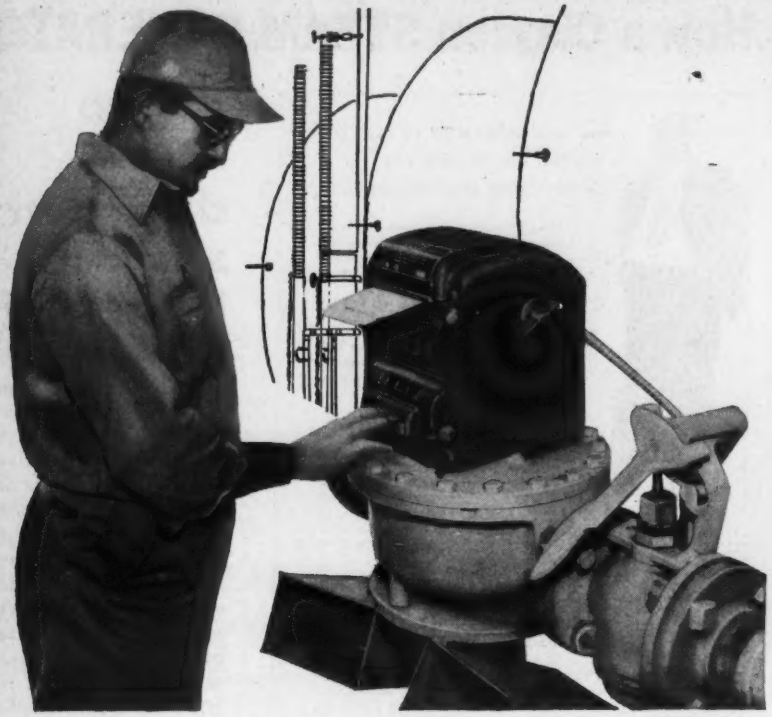
EXCLUSIVE!
Compare Clayton's 5-year published coil warranty covering material and labor.

Clayton MANUFACTURING COMPANY

Sirs:
Please send us more information on Clayton Steam Generators.
Name _____
Company _____
Address _____
City _____ Zone ____ State _____
We use steam for _____

Send to: Clayton Manufacturing Company
403 N. Temple City Blvd.
El Monte, California

5185 on Reader Service Slip



New quality control-
Meter-Printed Batch Tickets with

NEPTUNE *liquid* METERS

Get printed proof of delivery and automatic control of liquids going into the batch . . . with the Neptune Print-O-Meter. Prints exact quantities, with serial numbers and code letters to identify the batch and/or station. Foolproof operation . . . ticket is inserted and locked in place in meter before delivery. Ticket cannot be removed before being printed out.

You get quality control and dispute-free printed records of delivery if you handle any of these liquids (and others too!). Print-O-Meter sizes: 1 to 4 in., capacities 5 to 500 gpm. Other meters 2 to 1000 gpm.

Send for free Technical Metering Bulletin 567-HFP.

neptune

NEPTUNE METER COMPANY

19 West 50th Street, New York 20, N. Y.

Branches in

ATLANTA • BOSTON • CHICAGO • DALLAS • DENVER
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In Canada: TORONTO 14, ONT.

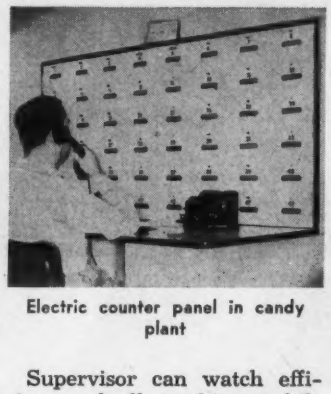
How many of these liquids can you handle better with Neptune?

Acetates	Lime Water
Acetone	Linseed Oil
Alcohol	Liquid Soap
Ammonium Nitrate	Liquid Sugar
Ammonium Sulfate	Lubricating Oil
Banana Oil	Methylated Spirits
Barium Chloride	Methyl Bromide
Benzol	Methyl Formate
Borax Solution	Methyline Chloride
Brine	Mineral Spirits
Bunker "C"	Molasses
Butanol	Naphtha
Calcium Chloride	Oleic Acid
Carbon Bisulphide	Oleum Spirits
Carbon Tetrachloride	Paint
Castor Oil	Paraffin Oil
Cellulose Solvent	Paste
China Wood Oil	Perfume
Chloropicrin	Pine Oil
Chocolate	Plasticizer
Cocoa Butter	Polymer, Molten
Coconut Oil	Propylene Glycol
Coffee	Pyrethrum Mixtures
Condensate	Rum
Corn Syrup	Shellac (Alcohol)
Cotton Seed Oil	Silicone Oil
DDT	Soap Solution
Dextrine Solution	Sodium Benzoate
Diacetone	Sodium Carbonate
Dibutyl Phthalate	Sodium Chloride
Diethyl Carbitol	Sodium Silicate
Diethylene Glycol	Soy Bean Oil
Dimethyl Phthalate	Starch Solution
Ethyl Cellosolve	Stearic Acid
Ethylene Glycol	Styrene Monomer
Fish Oil	Sugar Syrups
Formaldehyde	Tallow
Freon	Tannic Acid
Fuel Oil, Hot	Trichlorethylene
Glucose	Tungwood Oil
Glue, Water Sol.	Turpentine
Glycerine	Varnish
Grease	Vinyl Lacquer
Ink	Water
Isobutylene	Wax Emulsions
Isopropanol	Whiskey
Kerosene	Wine
Lacquer	Xylol

5186 on Reader Service Slip

How one plant increased production 30 per cent

Production of machines in a candy plant was increased by 30 per cent, one month after a remote counting device was placed in operation. Idle machine time was reduced 8 per cent.



Electric counter panel in candy plant

Supervisor can watch efficiency of all machines while seated at panel board. When production stops from any machine, control lamp lights and stoppage is investigated.

Only product units are measured, eliminating guesswork and furnishing accurate, permanent record of each machine's performance.

Remote counting is tamperproof, so that false production records are eliminated. Heavy duty electric counters are mounted in panel board. Microswitches on production line furnish counting impulses.

Productimeters in central panel are products of Durant Mfg. Co., 1951 North Buffum St., Milwaukee 1, Wisc.

For more information circle 5187 on Reader Service Slip.

Where and how to use pneumatic controls

The practical value of pneumatic controls, as well as the "system engineering" approach to the use of such controls, is presented in a 28-page booklet.

Compressed air power and pneumatic controls may be used in circuits ranging from a simple valve-cylinder combination, to a complex, interlocked and automatically op-

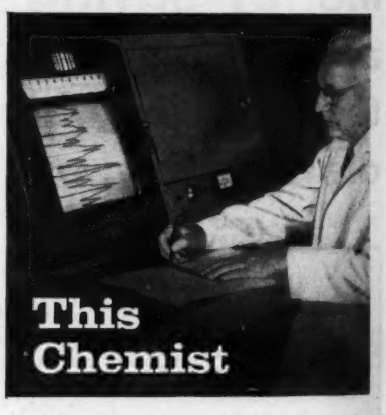
NOW Moisture Determinations in less than 1 minute

FOODS WOOD TEXTILES
PAPER COAL TOBACCO
and many other materials with the

SCHLUMBERGER NMR Analyzer

performs 250 moisture determinations daily and

Gives



fast, accurate data

for process improvement and quality control

Non-destructive moisture testing of solid product samples by the NMR (Nuclear Magnetic Resonance) method makes tremendous savings in time and money.

The large (40 cc) sample size allows high sampling accuracy. Results are reproducible to parts per thousand with accuracy of 0.1% absolute.

For complete information, including material-study reports, write to Department FP-9.

RIDGEFIELD INSTRUMENTATION DIVISION

SCHLUMBERGER

WELL SURVEYING CORPORATION

Ridgefield, Connecticut

5188 on Reader Service Slip

erating grouping of valves, cylinders, servo-mechanisms, and so forth.

Included in booklet are 23 line diagrams, designed to illustrate certain basic formations regarding valves and cylinders. Although diagrams refer to various devices, general function for some of them is given.

Also diagramed are 38 control circuits using pneumatic controls for such diverse operations as feeding corrugated cartons for packaging and automatic mixing of various materials in a food plant.

Booklet F9-180.00, "Basic Pneumatic Control", is available from Westinghouse Air Brake Co., Industrial Products Div., Wilmerding, Pa.

For your copy simply circle 5189 on Reader Service Slip.

Two scales in one for meat industry

Uses: One scale functions both as conventional platform scale for weighing at floor level, and as overhead track scale for weighing hanging units.

Scale weighs trucked units, (left) and hanging units, (right)

Features: Reduces operating costs, reduces capital investment and maintenance charges. Gross weighing capacities may reach 12,000 lb.

Description: All-steel lever construction scales are special order unit for certain types of operations.

Detecto Combination Track and Dormant Platform Scale is development of Detecto Scales, Inc., 540 Park Ave., Brooklyn 5, N.Y.

For more information circle 5190 on Reader Service Slip.

TAYLOR AUTOMATIC CONTROLS OPERATE THE 20 RETORTS AT PERFECTION CANNING'S NEWARK, N. Y. PLANT

N. Y. CANNER CUTS COSTS, REDUCES ERRORS WITH NEW TAYLOR CONTROLS

Perfection Canning Co. operates more efficiently, produces more uniform product with Taylor Automatic Retort Controls

Newark, N. Y.: H. G. Chapman, President of Perfection Canning, writes that modernization of 20 retorts with Taylor automatic controls has solved many production problems for his company.

"We are sure of a better . . . more uniform product. We can operate our cook room with less help. And the possibility of mistakes . . . is eliminated.

"We are very pleased with our Taylor Controlled cook room. We are getting uniform quality control with a saving of steam and water."

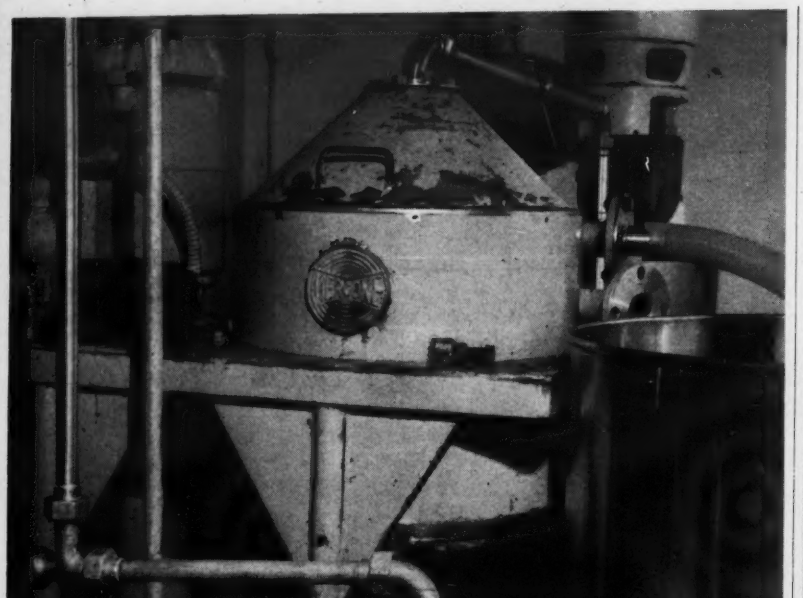
* * *

Find out how Taylor Controls can help you too. Call your Taylor Field Engineer, or write Taylor Instrument Companies, Rochester, N. Y., or Toronto, Ontario.

FOR PERFECTION, Taylor Controls do *everything* in the canning process . . . *automatically*. They (1) modulate steam valve to maintain precise cooking temperature; (2) turn off steam at end of cook cycle, admit cooling water to retort, maintain pressure throughout cooling period to prevent can damage; (3) turn off and reset system at end of cycle. Cycle can also be terminated manually any time.

Taylor Instruments **MEAN ACCURACY FIRST**

5191 on Reader Service Slip



DYNAMIC SEPARATION AT HANSEN'S JUICES

Mercone Screening Centrifuge applied to wide variety of fruit and vegetable pulps

Installed at the Los Angeles, California plant of Hansen's Juices for extraction from a wide variety of ground fruit and vegetable pulps, the Mercone Screening Centrifuge, by providing instantaneous separation of pulp and juice, is producing consistently high quality products.

A totally enclosed, sanitary unit, the Mercone combines the outstanding features of a centrifuge and a screen and is the ideal solution for the problem of applying continuous processing to previously used, time-consuming batch method operations. The amazing versatility of the unit is graphically illustrated at Hansen's where being processed on the same machine are carrot, apple, parsley, spinach, cabbage and celery pulps.

"Dynamic Separation" as embodied in the Mercone Screening Centrifuge can well pay extra dividends in your plant. For more complete information, write — Dorr-Oliver Incorporated, Stamford, Connecticut. *Mercone—Reg. T.M. U.S. Pat. Off.*

DORR-OLIVER
INCORPORATED
WORLD-WIDE RESEARCH • ENGINEERING • EQUIPMENT
STAMFORD • CONNECTICUT • U.S.A.

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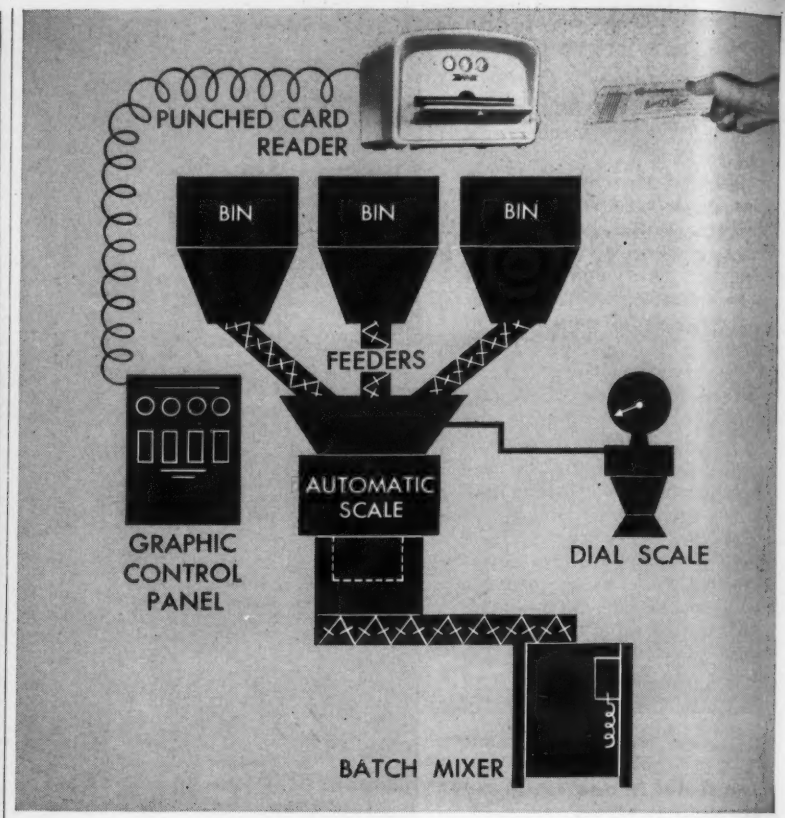


RICHARDSON SELECT-O-WEIGH

AUTOMATES

FROM BIN TO BATCH

The Richardson Select-O-Weigh system governs all components required for automatic formulation by weight of any product, liquid or solid, involving any number of ingredients.

Programming — by a Punched Card Reader or alternate control systems

Flow Control and Indication — at one remote control panel, housing complete process circuitry

Feeding — feeders engineered for specific materials and needs

Weighing — by Richardson Automatic Scale, accurate to 1/10 of 1%

Mixing — of ingredients in completed batch

Readout — counters, totalizers, printers, typewriters, recorders of all types

When required, service is available from Richardson's nationwide network of service facilities . . . within 24 hours. Custom-engineered by the world's foremost manufacturer of automatic weighing and proportioning equipment, Select-O-Weigh helps you make a better, more uniform product, at lower cost. For full details write, wire or call today.

Richardson Scales conform to U.S. Weights and Measures H-44 *for your protection.*

Richardson
MATERIALS HANDLING BY WEIGHT SINCE 1902

RICHARDSON SCALE COMPANY • CLIFTON, NEW JERSEY
Sales and Service Branches in Principal Cities
Also Manufactured in Europe to U.S. Standards

5193 on Reader Service Slip

Maintenance virtually nil on in-line flow meter

An in-line turbine-flow meter, which requires almost no maintenance, is described and illustrated in 21-page booklet.

Unit is constructed entirely of stainless steel and has an internal assembly of only four parts. Booklet includes tables and diagrams as well as applications of meter.

A six-page bulletin, which is also part of booklet, discusses a sanitary flow sensing element for the food industries.

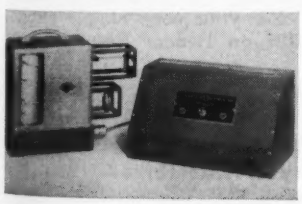
"The Pottermeter: Key to Dairy Automation" is available from The Pottermeter Co., Div. of Potter Aeronautical Corp., Union, N.J.

For your copy simply circle 5194 on Reader Service Slip.

Recorder-controller offers accuracies of ± 3% RH and ± 1° F

Uses-Features: Variable-range humidity and temperature recorder-controller provides humidity readings accurate to ±3 per cent RH. This is within operating range of 15 to 95 per cent RH at temperatures from 32°F to 130°F.

Temperature readings are accurate to ±1°F over a range of 0°F to 100°F.



Sensing section is at left, monitoring section at right

Description: Two part instrument has a sensing section and a monitoring section. Direct reading of recorded humidity and temperature and control limit lines may be taken through indicator window in sensing section.

Operator may set control ranges for RH and tempera-

(*Continued on next page*)

Why external recalibration is important to users of industrial thermometers

Sometimes it is necessary to recalibrate thermometers in industrial installations due to severe shock from rough handling, or to calibrate for extreme accuracy at any point on the scale for special work range.

To recalibrate the ordinary bimetal thermometer, you must remove the dial glass and move the pointer by hand. You will achieve the desired recalibration of course, but a number of undesirable things may also result. First of all, the instrument's air-tight seal is automatically destroyed in the removal of the dial glass. Secondly, in forcing the pointer, the pointer shaft may become bent or twisted.

Should the pointer shaft become bent even slightly, it can cause the pointer to stick due to improper alignment of the bimetallic shaft on its bearing surfaces. The obvious result, of course, will be inaccurate readings and necessary repair or replacement of the instrument. *None* of these things can happen with the RMC external recalibration device.

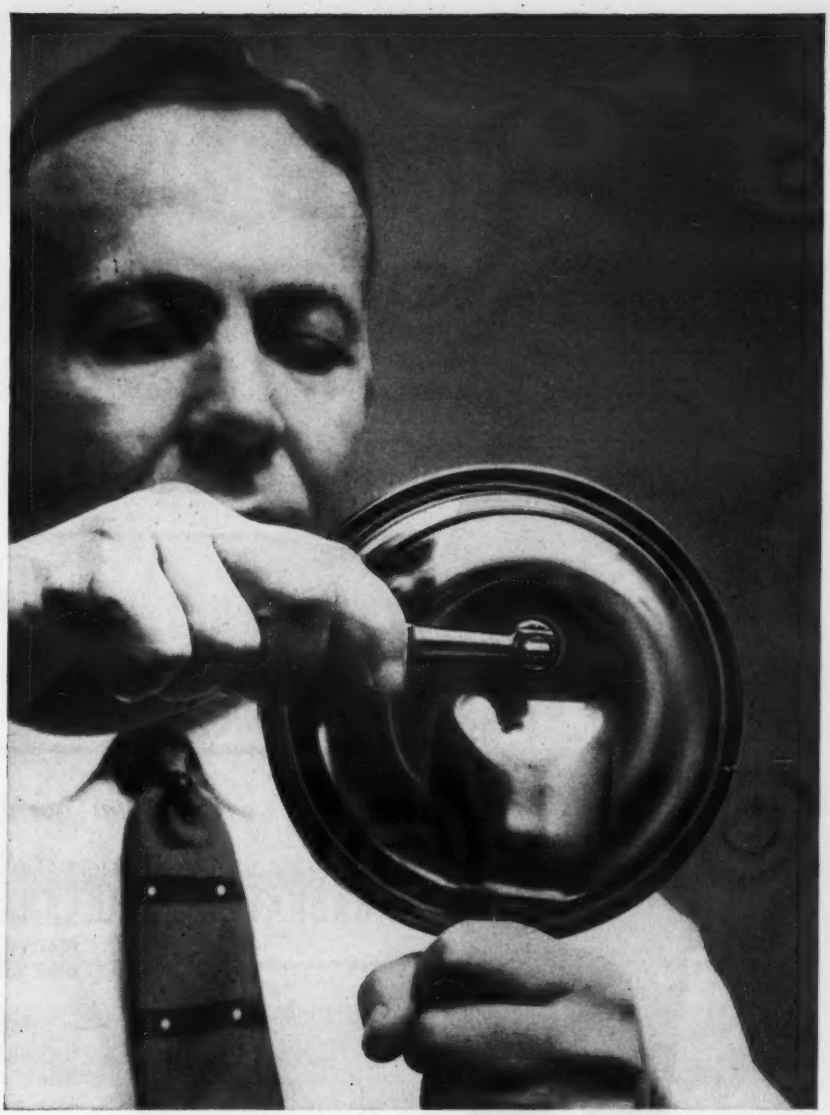
A simple dial-reset screw, located on the back side of RMC industrial thermometers, permits recalibration without opening the instrument in any way. This external recalibration feature is *exclusive* with RMC, along with true dry-air hermetic sealing.

SHIPPINGPORT, Pa.—Heavy-duty dial thermometers play an important role in the operation of the world's first full-scale atomic-electric generating station devoted exclusively to civilian needs. These thermometers, manufactured by RMC, can be recalibrated externally. The plant is a joint project of Westinghouse Electric Corporation, Atomic Energy Commission and Duquesne Light Company of Pittsburgh.

RMC high pressure gauge, developed for missiles, now available to industry

RMC-LINDSAY PRESSURE GAUGES indicate pressures in ranges 0 to 1,000 psi., up to 0 to 15,000 psi., with retard scales available. Multiple coil, helical Bourdon tube type, with pointer attached direct—no linkages or pivots. Can withstand extreme shock, vibration, temperature, or overpressure and maintain consistent accuracy.

Write, wire or phone—tell us your requirements for indicating instruments, and let RMC engineering skill go to work for you. ROCHESTER MFG. CO., 111 Rockwood St., Rochester 10, N. Y.



This maintenance engineer is recalibrating an RMC bimetal dial thermometer by means of the exclusive RMC *external* dial reset screw—a simple on-the-job operation with RMC thermometers.

RMC external recalibration device saves thermometer's hermetic seal

With this *external* dial reset screw you can recalibrate your RMC thermometer easily and safely, should it ever be necessary. The all-important hermetic seal cannot be destroyed and there is no chance for damage to the critical pointer shaft. You get the *only* bimetal industrial thermometer that provides for *external* recalibration when you specify RMC.

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ROCHESTER MANUFACTURING CO., INC.
111 ROCKWOOD STREET • ROCHESTER 10, N.Y.

LIQUID LEVEL TEMPERATURE and PRESSURE INSTRUMENTS

REPRESENTATIVES IN ALL PRINCIPAL CITIES

5195 on Reader Service Slip

...take another look...

Had you noticed?.....

. . . the design of this magazine is "different" —

—its "wide screen" pages give more effective presentation to editorial . . . and advertising.

—it permits editorial to be carried throughout the issue. No solid ad sections.

—it's easy to carry, to handle, to file.

This "executive size" . . .
invites fast, easy reading of busy executives — its columns are newspaper width . . . there's high visibility everywhere.

This is a development from the "king size" which was created 20 years ago by Putman Publishing Company . . . retaining the best of the old, adding new features.

All Putman Publishing magazines now appear in this format . . . CHEMICAL PROCESSING, FOOD PROCESSING, FOOD BUSINESS, POWER INDUSTRY . . .

. . . here's another step forward in business paper publishing.

FOOD PROCESSING

Russell L. Putman
Publisher

(*Continued from preceding page*)
ture by locating recording chart electrical contact blocks on a positioning post in sensing section.

If one of recording pens contacts a previously set limit block, a control circuit energizes an appropriate relay, generating a 5-amp control signal.

Switches are provided to initially establish conditions within control ranges prior to start of automatic control.

Sensing section is 12" x 15" x 6". Monitoring section is 8" x 8" x 14".

Humidity and temperature recorder-controller (Model HGS-HYT-1C) is a development of Serdex, Inc., 12 Bowdoin Square, Boston 14, Mass.

For more information circle 5196 on Reader Service Slip.

Lists 250 parts, supplies for instruments

Loose-leaf catalog covers industrial instrument accessories and supplies in five sections titled: mechanical, pneumatic, electric-electronic, general, and tools and services. Some of the items included are pressure gage and flow meter accessories, thermometer wells, bushings and flanges, air supply regulators and filter sets, thermocouples, dew point elements, charts, chart drives, instrument pens and ink.

Catalog No. 500 is issued by Foxboro Co., Foxboro, Mass.

For your copy simply circle 5197 on Reader Service Slip.

Metal detector unaffected by outside forces

English-made, production-line metal detector which is unaffected by vibration, temperature, humidity, line voltage changes, and nearby moving metal objects, is described in 12-page brochure. Specifications are given.

Brochure on Cintel metal detectors is issued by Potter Engineering Corp., Route 22, Union, N. J.

For your copy simply circle 5198 on Reader Service Slip.

fp **QUALITY CONTROL**

Fume hood draws constant air volume

Offers greater lab safety, admits air in smooth pattern

For use in all laboratories, fume hood draws a constant volume of air through grille at top front even when sash is closed.

This design offers greater safety and admits air in smooth, unbroken pattern.

High velocity jet that blows into conventional fume hoods when sash is almost closed, often blowing out burners, tipping glassware, or otherwise disturbing experiments, has been eliminated.

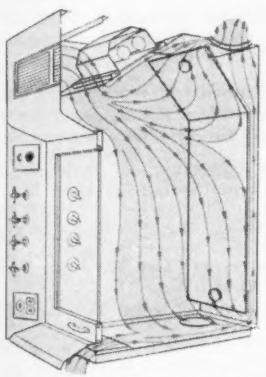


Diagram shows sectional side view of hood with sash down. Note how air enters through grille at top and purges hood interior. Grille opening is controlled by sash position, being completely open when sash is entirely closed

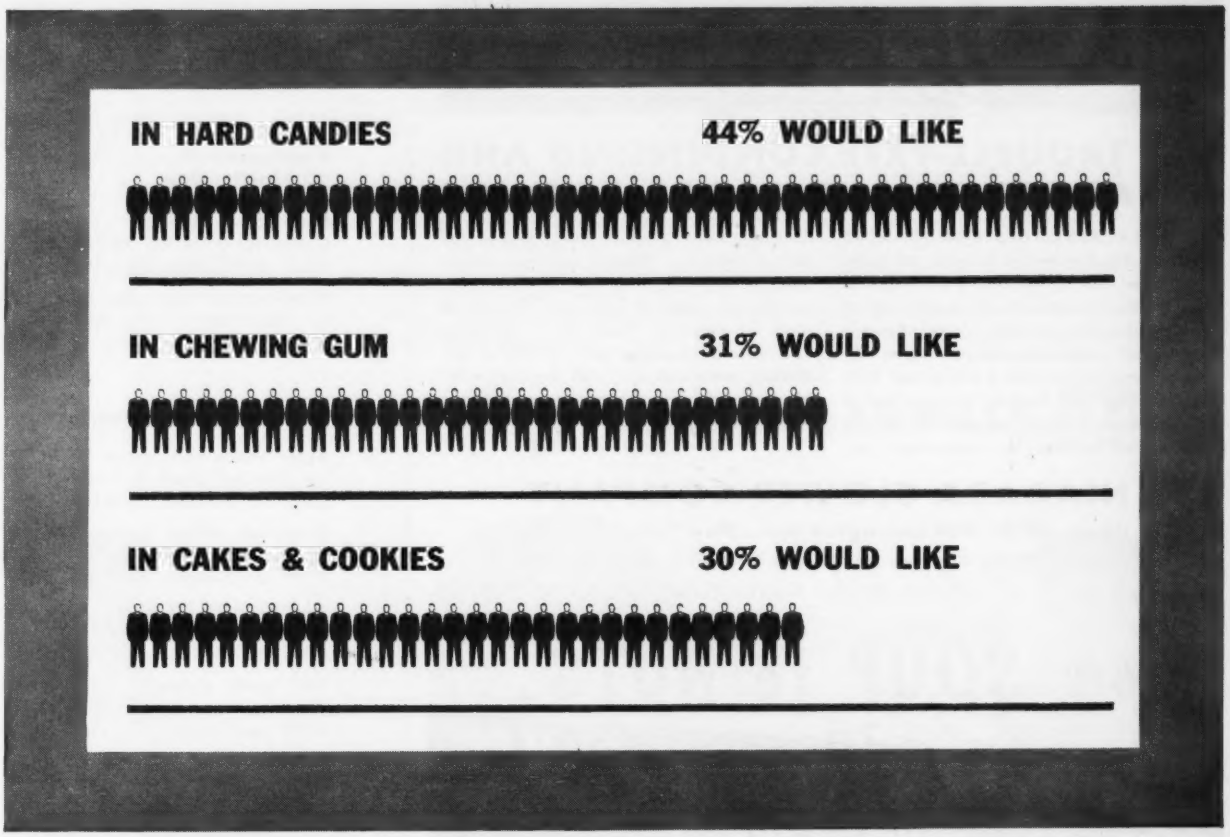
Air foil across front directs incoming air across work surfaces, sweeping fumes back to lower baffle opening (See diagram). A one-inch air space between air foil and ledge of work surface is always open.

Fume hood is 108" high, 72" wide and 37" front-to-back. It has a totally enclosed ¼ hp 860 rpm motor and blow set, capable of moving 870 cfm of air against ¼" static pressure.

Airflow Fume Hood is a development of Fisher Scientific Co., 717 Forbes St., Pittsburgh 19, Pennsylvania.

For more information circle 5199 on Reader Service Slip.

34,000,000 ADULTS WANT THIS FLAVORING



Anethole is the Answer!

Wherever flavoring is important, this recent survey by the Gallup Organization is revealing new markets for anise among one out of three adults. Trained Gallup Poll interviewers determined that anise, or the closely similar flavor, licorice, is preferred by millions in a wide variety of products. Here are some additional facts from this nation-wide survey:

- 34,000,000 adults (out of an estimated 103,000,000 U. S. adult population) are real fanciers, while another 16,500,000 adults like the flavor.
- A larger proportion of the fanciers is in the upper economic group.
- Slightly more women than men like anise flavoring.
- More younger adults than older persons say that anise flavor would appeal to them.
- Anise flavoring is more popular in the East and West and in communities of over 500,000 population.
- Those who like the flavor are strongly in favor of it!

Hercules anethole, a domestic equivalent to imported anise, is produced from a plentiful domestic raw material source to meet U.S.P. specifications. Anethole represents a dependable source of supply for a high quality product. Ask your regular supplier for Hercules anethole or flavors based on anethole, and include anethole-flavored products in your line.

HERCULES ANETHOLE

HERCULES POWDER COMPANY
INCORPORATED
Wilmington 99, Delaware

HC 58-1

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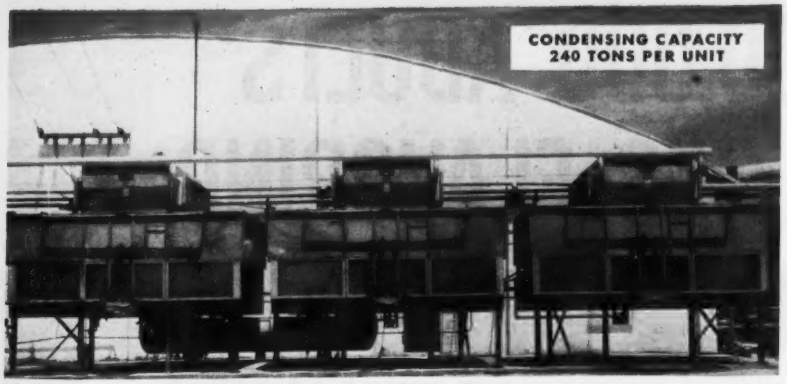

GET TROUBLE-FREE CONDENSING AND GREAT POWER AND LABOR SAVINGS

NIAGARA AEROPASS CONDENSERS give you trouble-free, automatic refrigeration at the least spread between head-pressure and suction pressure. You gain a great power saving. You also get removal of superheat before condensing, condensing at subcooled temperature and a refrigerant fully purged of oil. Out-door air takes up heat of condensation through evaporation of the least amount of water; low temperature condensing means freedom from scaling and loss of capacity. Niagara sectional design offers you lower costs for more compact equipment, easier to keep up. You get always full capacity, "new plant" efficiency and continuous savings such as 95% of condensing water cost that add to your profit. Managers who know their costs buy Niagara Aeropass Condensers.

Write for Bulletin 131

NIAGARA BLOWER COMPANY

Dept. FP-9, 405 Lexington Ave., New York 17, N.Y.

Niagara District Engineers in Principal Cities of U. S. and Canada

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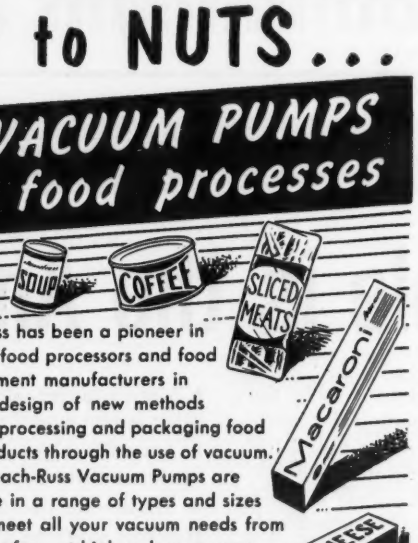
from SOUP to NUTS...

BEACH-RUSS VACUUM PUMPS for ALL your food processes



Beach-Russ has been a pioneer in aiding food processors and food equipment manufacturers in the design of new methods of processing and packaging food products through the use of vacuum. Beach-Russ Vacuum Pumps are available in a range of types and sizes to meet all your vacuum needs from 1 to 1800 c.f.m., at high or low vacuums. If you are planning a new installation or are in need of technical advice, get in touch with Beach-Russ. General Bulletin 89 sent on request.

✓ PACKAGING ✓ FREEZING ✓ CONCENTRATING
✓ DRYING ✓ DEHYDRATING ✓ RESEARCH

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Address Department 40

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new literature Classified Listing

Equipment
Ingredients
Supplies

Starred *items below have been reviewed more extensively in other sections. Reader is referred to key numbers for their location

Management, administration

Food Laws 1953-57* 1144 pp, Commerce Clearing House, Inc.
5007 on Reader Service Slip.

New Horizons for supervision* 12 pp, Elliot Service Co., Inc.
5023 on Reader Service Slip.

Trucks and accessories

Floor trucks and casters (58-S) 20 pp, Nutting Truck & Caster Co.
5203 on Reader Service Slip.

Industrial wheels (Cat 157-W) 6 pp, Faultless Caster Corp.
5204 on Reader Service Slip.

Cushion tired lift trucks (1616) 12 pp, Hyster Co.
5205 on Reader Service Slip.

Lift truck design & engineering (SP-10) 24 pp, Towmotor Corp.
5206 on Reader Service Slip.

Lift trucks* (5063) 14 pp, Yale & Towne Mfg. Co.
5095 on Reader Service Slip.

Shipping containers, palletizing

Nestaway System 8 pp, Mid-West Metallic Products, Inc.
5207 on Reader Service Slip.

Corrugated box specifications 33 pp, Hinde & Dauch
5208 on Reader Service Slip.

Storage and shipping cans (112) George D. Ellis & Sons
5209 on Reader Service Slip.

Pneumatic steelstrapper (AD 251) 8 pp, Acme Steel Co.
5210 on Reader Service Slip.

Corrugated box gap flaps* 24 pp, Fibreboard Box Assn.
5132 on Reader Service Slip.

Carloading procedures (SPD-133) Signode Steel Strapping Co.
5211 on Reader Service Slip.

Wirebound pallet boxes* 8 pp, Wirebound Box Manufacturers Assn.
5096 on Reader Service Slip.

Conveyors, racks, accessories

Prefabricated spouting parts 8 pp, MIAG North America, Inc.
5212 on Reader Service Slip.

Removable roller conveyor 16 pp, Rapids-Standard Co.
5213 on Reader Service Slip.

Pneumatic conveying, air classifying 24 pp, Fluor Products Co.
5214 on Reader Service Slip.

Conveyor lubrication (F-10347) 4 pp, Oakite Products
5215 on Reader Service Slip.

Mesh belt conveyors* 12 pp, Cambridge Wire Cloth Co.
5082 on Reader Service Slip.

Air conveying dry materials* F-14,4 pp, Sprout, Waldron & Co., Inc.
5089 on Reader Service Slip.

Conveyors* Cat 80, 4 pp, E. W. Buschman Co.
5097 on Reader Service Slip.

Flow handling systems* 4 pp, Metzgar Conveyor Co.
5091 on Reader Service Slip.

Can sorters (3R 3242) 8 pp, Radio Corp. America
5216 on Reader Service Slip.

Conveyor rack (Form 16) 12 pp, Rapids-Standard Co., Inc.
5217 on Reader Service Slip.

Packaging, labelling, cartoning

Automatic bagging scale (3749B) 6 pp, Richardson Scale Co.
5218 on Reader Service Slip.

How to buy adhesives 8 pp, Arabol Manufacturing Co.
5219 on Reader Service Slip.

Adhesives for bottle labels 12 pp, H. B. Fuller Company
5220 on Reader Service Slip.

Frozen food carton 4 pp, Chicago Carton Co.
5221 on Reader Service Slip.

Antioxidant* (Bul G104) 12 pp, Eastman Chemical Products
5127 on Reader Service Slip.

Filler (CMD 801E, CMD 501-E) Food Machinery & Chemical Corp.
5222 on Reader Service Slip.

Automatic screw capper Canning Machinery Co.
5223 on Reader Service Slip.

Processing equipment

Wiener and frankfurter processing (V4062) 12 pp, Visking Co.
5224 on Reader Service Slip.

Custom stainless steel equipment 38 pp, Paul Mueller Co.
5225 on Reader Service Slip.

Liquid, solid feeders (32-R2) 8 pp, Omega Machine Co.
5226 on Reader Service Slip.

Pressure leaf filters (Bul 146) 8 pp, T. Shriver & Co., Inc.
5227 on Reader Service Slip.

Vapor condenser for saving cooling water (139 R) 4 pp, Niagara Blower Co.
5228 on Reader Service Slip.

Polyethylene tanks 2 pp, American Agile Corp.
5229 on Reader Service Slip.

Processing equipment, size reduction, mixers, etc. (200) 8 pp, Sprout, Waldron & Co.
5230 on Reader Service Slip.

Oats tempering conveyor (SS 202) 2 pp, Sprout, Waldron & Co., Inc.
5231 on Reader Service Slip.

Pre-assembled spray dryer (1M-1157-49-0) Henszey Co.
5232 on Reader Service Slip.

Bulk Storage tank* (Form 1655) 4 pp, Butler Manufacturing Co.
5075 on Reader Service Slip.

Controls, regulators

Temperature indicating controller (MC-168) 4 pp, Fenwal, Inc.
5233 on Reader Service Slip.

Electronic system regulating motor speed* 14 pp, Cutler-Hammer, Inc.
5153 on Reader Service Slip.

Liquid level sensor (RF-581) 2 pp, Robertshaw-Fulton Controls
5234 on Reader Service Slip.

In-line turbine flow meter* 21 pp, Pottermeter Co.
5194 on Reader Service Slip.

Basic pneumatic control* (F9-180-00) 28 pp, Westinghouse Air Brake Co.
5189 on Reader Service Slip.

Metal detection* 12 pp, Potter Engineering Corp.
5198 on Reader Service Slip.

Instrument accessories* (Cat 500) Foxboro Co.
5197 on Reader Service Slip.

(*Continued on page* 113)

It takes eye-appeal to sell the modern shopper...

Give products the sparkle that lasts . . . "polish" them with Fibra-Flo Filter Aids

WHEN your bottled beverage or liquid product has to sell itself, it's sound point-of-sale policy to equip it with all the eye-appeal you can. How? Filter the product to give it a long-lasting high "polish." You can accomplish this operation quickly and economically with Johns-Manville Fibra-Flo® Filter Aids.

Fibra-Flo Filter Aids combine the many fine filtration advantages of Celite* diatomite with the adsorptive properties and mechanical strength of asbestos fiber. Used as a pre-coat, it forms a firm cake of millions of microscopic filter pores. It removes even the most minute suspended solids and colloidal matter which cloud a fine product's natural clarity and affect stability. And it does so with no effect on the most delicate of flavors.

Fibra-Flo also offers many operating advantages. Ready-mixed to form a uniform precoat, it eliminates the mess and guess of mixing. It saves costs, too, by cutting down on equipment and labor needs. That's because the filter aids are discarded after use, making it unnecessary to sterilize and recover filtermass.

Clarity is more uniform with Fibra-Flo. It forms a more stable precoat cake which resists pressure changes and overloading. Continuous addition of any of the standard Fibra-Flo or Celite grades assures uniformity throughout the filtration cycle. For further information, call your nearby Celite engineer, or write Johns-Manville, Box 14, New York 16, N.Y. In Canada, Port Credit, Ontario.

*Celite is Johns-Manville's registered trade mark for its diatomaceous silica products.

JOHNS-MANVILLE JM PRODUCTS

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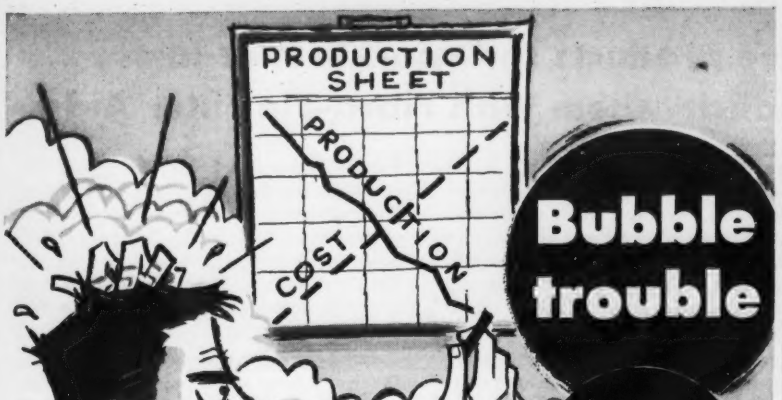

kill foam with a Dow Corning SILICONE DEFOAMER

Is foam giving you the old "one-two"? One—slowing up your processing . . . two—running up your costs? Fight back hard. Knock out foam fast, with Dow Corning silicone defoamers . . . most efficient foam killers known!

1 oz kills foam in:

- **208,333 lb** lobster tank brine
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FREE SAMPLE! Make your own test. Return coupon below for generous *trial sample* of a Dow Corning SILICONE DEFOAMER. No obligation, of course.

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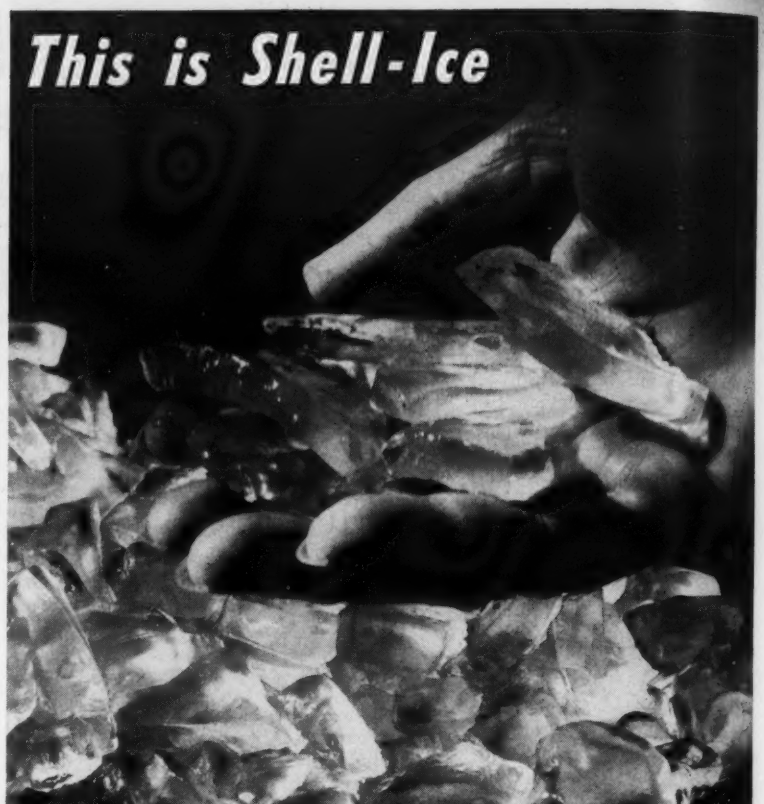

Shell-Ice Maker of Size 11—29 tons per 24 hours. Note double rows of tubes.

CLEAR . . . SOLID . . . COLD . . . and with rounded edges

Frick Shell-Ice is the natural preference of poultrymen, fishermen, shippers, ice men, and dairymen.

Frozen and harvested, in a thickness of 1/8" to 1/2", without labor or special cleaning, Shell-Ice will save you time and money. Get the whole Shell-Ice story now: ask for Bulletin 54.

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FRICK CO.
WAYNESBORO, PENNA., U. S. A.

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(*Continued from page* 111)

Temperature control valve (5811) 20 pp, Stow Mfg. Co.
5238 on Reader Service Slip.
Sliding gate temperature control* (SRB 15-58, J-180) Jordan Industrial Sales
5178 on Reader Service Slip.

Lab instruments, accessories

Infrared spectrophotometer (6-58-15) 24 pp, Perkin-Elmer Corp.
5239 on Reader Service Slip.

Maintenance

Lubricating, electrical devices Cat 58 Trico Fuse Mfg. Co.
5240 on Reader Service Slip.
Motor couplings, Folder 2875, 4 pp, Link-Belt Co.
5241 on Reader Service Slip.
Automatic door controls 4 pp J F & J Co., Inc.
5242 on Reader Service Slip.
Tank coatings, linings* (D.F.L) Bishopric Products Co.
5066 on Reader Service Slip.
Crack detector* (16674-1) 4 pp, Magnaflux Corp.
5060 on Reader Service Slip.
Couplings (Bul A 665, A 681) Dodge Manufacturing Co.
5243 on Reader Service Slip.
Equipment washer 4 pp, Creative Metals Corp.
5244 on Reader Service Slip.

Flooring and roofing

Topcrete floor surface (SH 56) 4 pp, Walter Maguire Company
5245 on Reader Service Slip.
Fibre glass roof coating 4 pp, The Garland Co.
5246 on Reader Service Slip.
Re-roofing system (1106) 4 pp, The Monroe Co., Inc.
5247 on Reader Service Slip.
Grout cement* (Bul 108A) 4 pp, Nukem Products
5065 on Reader Service Slip.

Piping, pumps, valves

Flush valve (Data sheet 42) 2 pp, The Pfaudler Co.
5248 on Reader Service Slip.
Stainless mechanical tubing (TB 365 A) 8 pp, Babcock & Wilcox Co.
5249 on Reader Service Slip.
Glass pipe, fittings (PE-3) 44 pp, Corning Glass Works
5250 on Reader Service Slip.
Pipe specifications* Midcontinent Tube Service, Inc.
5062 on Reader Service Slip.

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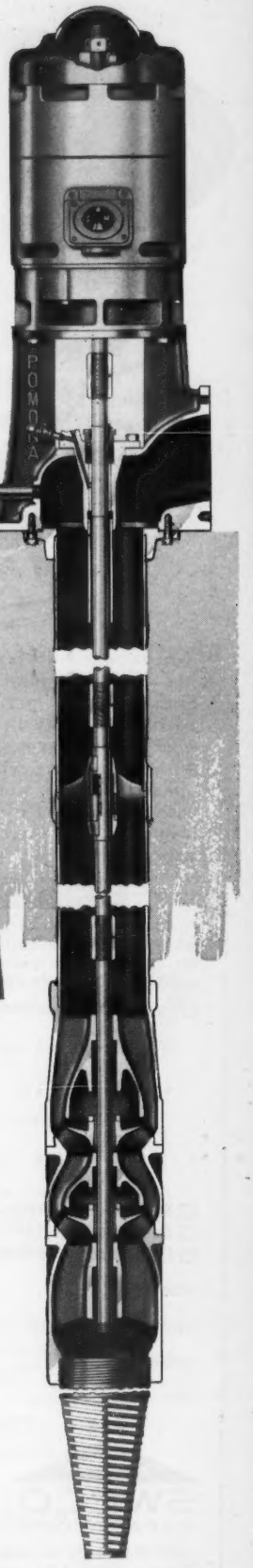
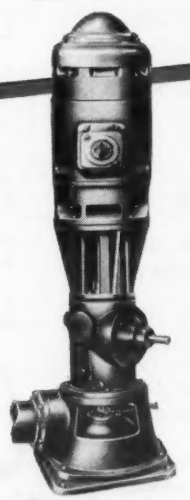
Low price is only the beginning with this rugged turbine pump. Fairbanks-Morse built-in features keep annual costs even lower by providing longer, trouble-free performance; simplified maintenance; greater flexibility.

Here are just a few of the features that make the F-M Pomona Pump such an outstanding investment for raw water supply, air conditioning, refrigeration, cooling towers, sump pumping, dewatering, etc.

- Water lubrication. Packing box, impeller adjustment above ground; can be reached without interrupting pump service
- Two piece head shaft facilitates installation and service
- Stilling tube keeps suspended material out of packing box
- Special bearings, bearing retainers and pump bowls designed for maximum efficiency and long life

Contact your Fairbanks-Morse Sales Engineer today. Ask for new illustrated Bulletin 6957-1. Or write Fairbanks, Morse & Co., 600 So. Michigan Ave., Chicago 5, Ill.





Seven Fairbanks-Morse pump factories in the United States, Canada and Mexico build the world's greatest variety of hydraulic combinations offered by any manufacturer of liquids-moving machinery.

Also available for combination drive with top mounted unidrive motor.

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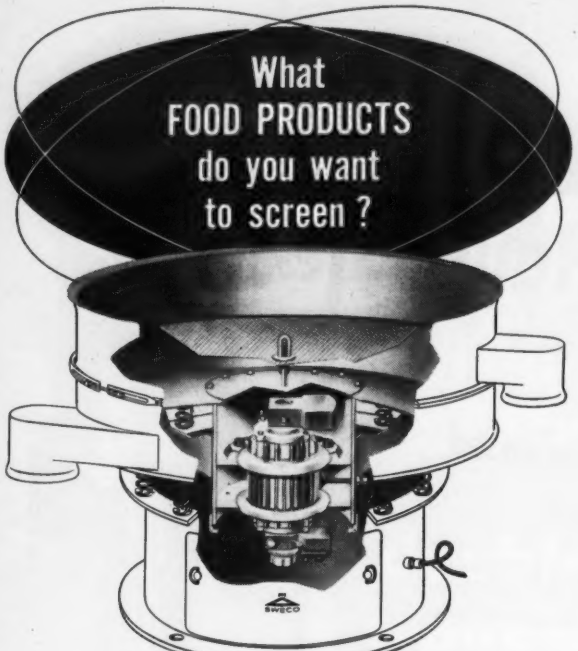

You can screen them better with a SWECO Vibrating Screen Separator. More than 550 SWECO Separators are performing efficient screening operations today in food plants throughout the world. Advantages include: big capacity – clean separation – long screen life – low operating and upkeep cost. So, whether the food materials you wish to screen are wet or dry – coarse or fine – heavy or light, you should investigate the SWECO Separator now.

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Check the kind of screening application in which you're interested. If it isn't listed, add it in the space provided. We can send you specific information on your screening problem or one very similar.

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- ☐ Fish processing
- ☐ Fruit juices
- ☐ Grain mill products
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☐ Send new SWECO Separator Catalog
☐ Send bulletin on "Solids-Liquid Separation"
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new literature

Sanitation

Fireless steam cleaner (P-7578) 2 pp, Kelite Corp.
5253 on Reader Service Slip.

Inside-Outside fly control 4 pp, The Huge' Co.
5254 on Reader Service Slip.

Sanitizing Wineries & Distilleries (B7430) 4 pp, Oakite Products
5255 on Reader Service Slip.

Spray cleaning devices (2031) 2 pp, Klenzade Products, Inc.
5256 on Reader Service Slip.

Insulation, thermal

Industrial insulations (Cat J424) 20 pp, Baldwin-Hill Co.
5257 on Reader Service Slip.

Low temperature insulation 4 pp, Borden Chemical Co.
5258 on Reader Service Slip.

Ingredients, food additives

Lemon juice in shrimp, seafood* (Bul 468, 478, 481) Sunkist Growers
5039 on Reader Service Slip.

Corn sirup in jams, jellies* (SB-1D1a) 14 pp, Clinton Corn Processing Co.
5035 on Reader Service Slip.

Kosher approved flavors* 8 pp, Dodge & Olcott, Inc.
5043 on Reader Service Slip.

Marshmallow candy formulations* (Bul 8) Atlas Powder Co.
5040 on Reader Service Slip.

BHT antioxidants* (DS 1-30-58) 10 pp, Hercules Powder Co.
5036 on Reader Service Slip.

Miscellaneous

Dehumidification facts (Bul 512) 6 pp, Abbeon Supply Co.
5259 on Reader Service Slip.

Air conditioning units (786) 54 pp, American Air Filter Co.
5260 on Reader Service Slip.

Mounted transplanter (5720-2) New Idea Farm Equipment Co.
5261 on Reader Service Slip.

Protective clothing (6-2758) 8 pp, B. F. Goodrich Co.
5262 on Reader Service Slip.

Laboratory, pilot plant services (58-1-4M) 4 pp, Roy F. Weston
5263 on Reader Service Slip.

Vacuum sterilization service* 4 pp, Chili Products Corp. Ltd.
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- ☐ Certified Food Colors
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- ☐ Coffee Flavor Specialties
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- ☐ Coumarin Replacements
- ☐ True Fruit Flavors
- ☐ Imitation Fruit Flavors
- ☐ Maple Flavor Specialties
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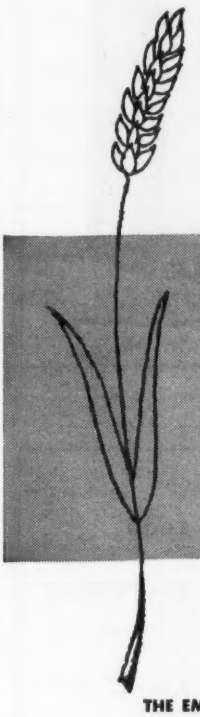

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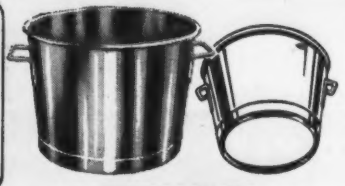

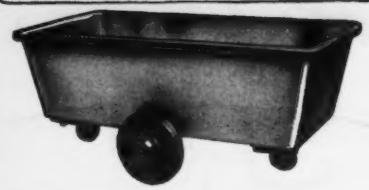

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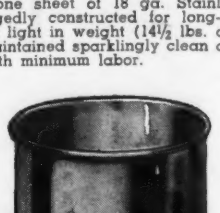

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is general manager of both LaChoy Food Products and grocery products division of Beatrice Foods Co.

Huron Milling Div.

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